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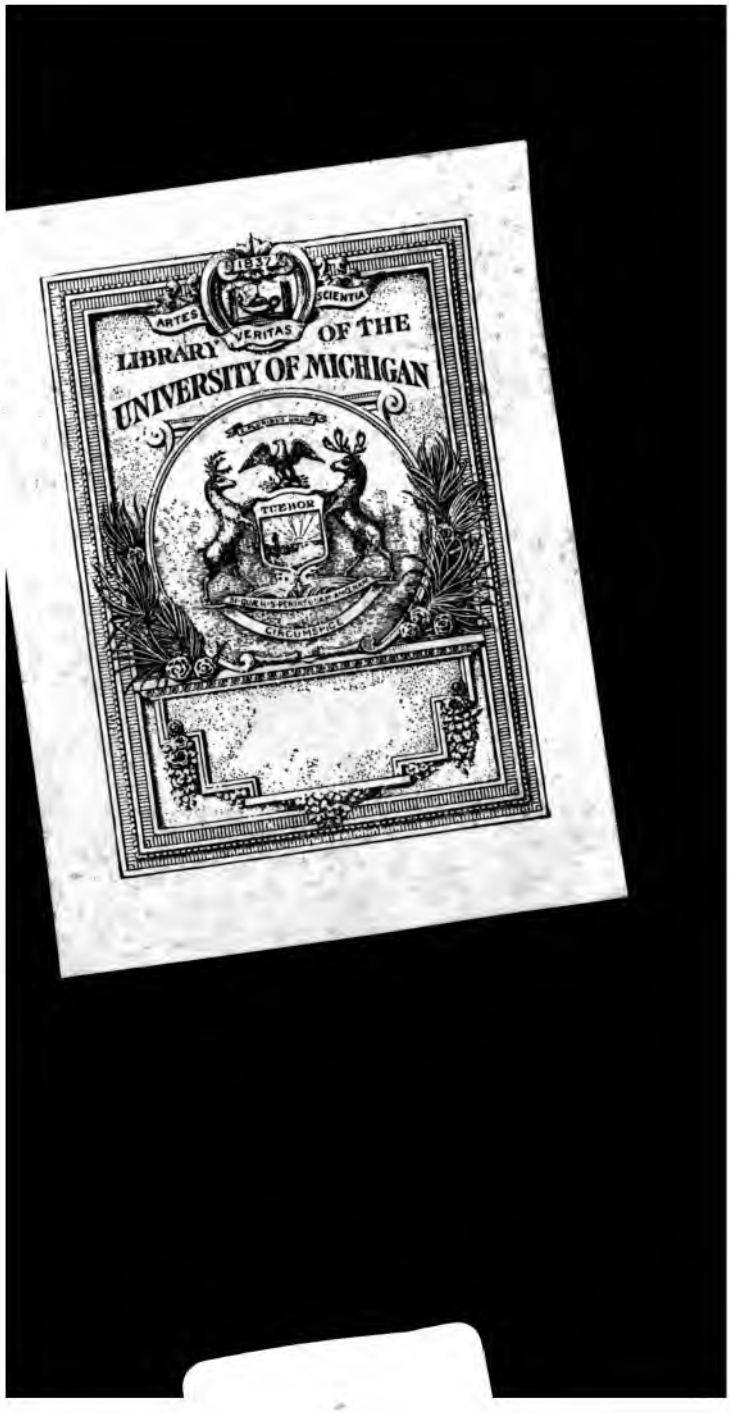
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WEDGWOOD VASE.

[Mounted on Pedestal near Wall Case I.]

Copy of a large Greek Vase in the British Museum, executed by Josiah Wedgwood. The original was formerly in the collection of Sir W. Hamilton. It belongs to the latest period of vase-painting, known as the style of the Basilicata, and is supposed not to be earlier than B.C. 200. [No. G. 343, p. 125.]

Presented by the late Apsley Pellatt, Esq., M.P.

CATALOGUE OF SPECIMENS

IN THE

MUSEUM OF PRACTICAL GEOLOGY,

ILLUSTRATIVE OF THE

COMPOSITION AND MANUFACTURE

OF

BRITISH POTTERY AND PORCELAIN,

FROM THE OCCUPATION OF BRITAIN BY THE ROMANS
TO THE PRESENT TIME.

BY

THE LATE SIR HENRY DE LA BECHE, C.B.,
DIRECTOR,

AND

TRENHAM REEKS,
CURATOR.

SECOND EDITION

BY

TRENHAM REEKS, AND F. W. RUDLER,
CURATOR, ASSISTANT-CURATOR.

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PREFACE TO THE FIRST EDITION, 1855.

When the sanction of the Treasury was given, in 1835, to the suggestion that advantage should be taken of the progress of the Geological Survey to form collections illustrative of the mineral wealth of the country, and of the application of its various mineral substances to the useful purposes of life, the Geological Survey was engaged upon Cornwall. Among the important substances there obtained were certain granite rocks known as *Cornish* or *China-stone*, and an artificial product named *Cornish* or *China-clay*, substances then largely employed in the composition and manufacture of porcelain and of certain earthenwares, and still more extensively used for these manufactures in the present day. The specimens obtained of these mineral substances for the Museum, then in Craig's Court, immediately led to collections of others illustrative of the earthenware and porcelain more or less manufactured with them.

As the progress of the Geological Survey continued, various other British mineral substances, which either had been in former times or were now employed for ceramic purposes, became known; and it was considered desirable to form a collection which should illustrate the composition and manufacture of British pottery and porcelain, from the occupation of Britain by the Romans to the present time. Although some portions of the collection in the Museum of Practical Geology may be defective, for the present it may be regarded as the best that has hitherto been formed; and there is every hope, especially from the continued donations of objects to it, which purchase could not obtain, that it may gradually be rendered still more effective for instruction.

In forming the collection it became needful to show, to a certain extent, the progress of enamelled colours from early times. Indeed, it would have been difficult to understand that part of the subject without such specimens. Hence those showing the enamel colours found at Nineveh and Babylon, the examination of which enabled Dr. Percy, metallurgist to the Museum, to point out that certain metallic oxides and their combinations were systematically used in enamel colours many centuries before the periods usually assigned. In like manner certain Greek vases became valuable, as also specimens from Italy, commonly known as Majolica, and from other countries, in obtaining knowledge applicable to a proper consideration of the advance made in the composition and manufacture of British pottery and porcelain. Such additions, however, are limited, and have their general bearing pointed out in the catalogue.

PREFACE TO SECOND EDITION, 1871.

THE first edition of this catalogue was issued in 1855, and having been rapidly sold out has become both scarce and dear. Since that time not only have many new facts come to light, especially as regards the important manufactory of porcelain at Stratford-le-Bow, but the Museum collection has been very largely increased and re-arranged, and it is believed that no such collection illustrative of the manufacture of pottery and porcelain in Great Britain has elsewhere been brought together and exhibited freely to the public.

A very important addition to the collection has been contributed by Mr. George Maw, of Benthall Hall, which has been rendered all the more valuable by the catalogue and description contained in an appendix written by himself, a practical potter.

It is hoped that this second edition, almost wholly prepared by the Assistant-Curator, Mr. Rudler, may prove as useful to manufacturers and collectors as the first is said to have been.

Jermyn Street,
February 1871.

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CERAMIC SERIES.

Introduction.

General Remarks on Ceramic Art.—It has been well remarked that there is no branch of industry viewed in reference to its history, its theory, and its practice, which offers more that is interesting, with regard alike to its economic application and to its scientific aspect, than the ceramic or plastic art; none affording products more simple and varied, more easy of manufacture, and, notwithstanding their fragility, more durable.*

It would appear in vain to search for any centre whence this art, like many other branches of human industry, may have radiated among the early nations of mankind. At the same time certain peculiar methods of working the materials employed in the art can readily be traced to their respective sources; and it may be often seen that a nation, spreading by conquest or by colonization, has carried with it certain peculiarities of the ceramic art.

The desiccation of clays after rain in countries where evaporation is rapid could not fail to attract attention to the soft and plastic state of such clays at one time, and to their comparative hardness at another.

We should therefore expect that sun-dried portions of clay would be early used for building purposes in regions generally dry, especially where building stones were scarce or even altogether absent. The further hardening of clays by fire could hardly fail to be observed at an early date, since any form of moulded clay, subjected to the action of strong heat, would readily show the induration which could be thus produced. The hardened state of such clays would readily suggest the extension of their use to the manufacture of domestic vessels, especially for such as might be advantageously employed over fires. No doubt, in

* Alexandre Brongniart. "Traité des Arts Céramiques; ou des Poteries considérées dans leur Histoire, leur Pratique, et leur Théorie." Paris, 1844. (Preface, tome I.)

26545.

regions where the vegetation afforded gourds and similar fruits fit for use as domestic vessels, the desire to obtain those of baked clay, except for use over fire, might be checked; while elsewhere the horns and skins of animals might be often found to serve sufficiently well for the like purposes. Nevertheless, the obvious convenience of baked clays for vessels required to withstand the effects of fire, and the desire for obtaining those of larger size than could be obtained from horns and gourds, would eventually produce an extended demand for the potter's ware.

Early History of Pottery.— Whatever may have been the origin of the manufacture of pottery, and however the art may have been spread, it was certainly known and practised in times beyond the reach of historical records. There is abundant evidence afforded by monuments of the so-called "Stone Age" to show that the art was cultivated among the people of Western Europe when at so low a stage of civilization as apparently to be ignorant of the use of metals, excepting perhaps gold. Many of the pile buildings in the Swiss lakes, which may be referred to the later stone period,—a period characterized by the use of polished stone implements, and the absence of both bronze and iron,—have yielded among their relics numerous remains of earthenware vessels, spindle-whorls, and other objects. As might be expected, these early specimens indicate the rude state of the art. The paste is coarse, and generally contains embedded grains of quartz, while the objects have evidently been made by hand, without the aid of the potter's wheel, and appear to have been very imperfectly hardened by fire. The ornamentation of such ware is almost confined to simple incised lines, produced sometimes by mere scratching with the finger nail, and sometimes by a thong twisted round the moist paste. Fragments of coarse hand-made pottery have also been found, associated with stone implements, in the Danish kitchen middens, or heaps of refuse-shells. But while only the rudest forms of ware have been brought to light from these sources, it is to be noted that early specimens of the potter's art, of a much finer description and more carefully worked, have been discovered in many tumuli or ancient burial mounds, which from their contents have been assigned by archæologists to the newer stone epoch or neolithic age.

In later times, when the use of bronze became general, considerable advance must have been made in the ceramic art, as testified by the remains found among the later Swiss lake dwellings. Not only has the clay in these cases been more carefully prepared, but the forms into which it is worked have become more varied, and the style of ornamentation more refined. None of the specimens, however, show signs of having been turned on the potter's wheel, and it is therefore believed that this mechanical contrivance, ancient as it undoubtedly is, was never-

theless unknown during those early phases of civilization represented by the so-called ages of stone and bronze.*

The high antiquity of the ceramic art is further attested by the constant discovery of remains of pottery among the ruined cities and tombs of ancient nations, with whose history we are more or less acquainted; and also by early records, such as those of the Scriptures, which not only afford frequent references to the art, but also show that it was formerly held in high esteem.†

Composition and Origin of Clays.‡—It may be said generally that the base of a clay consists of that portion of some of the minerals named *felspars* which remains after their partial decomposition by atmospheric and other influences. This portion is a combination of silica (or the matter of rock crystal) with alumina (or the matter of sapphire, ruby, and corundum), termed silicate of alumina. In all clays this compound exists in a hydrated form, that is, in chemical combination with water which cannot be expelled by mere exposure to the temperature of ordinary boiling water. The potash, soda, lime, or oxide of iron that may be present in the original felspar is removed to a great extent in the form of soluble carbonates or bicarbonates by the action of water holding carbonic acid gas (carbon dioxide) in solution. Most clays, however, contain, in addition to the hydrous silicate of alumina, a variable proportion of free silica and of other foreign substances in a state of mechanical association. These substances greatly affect the manner in which a clay behaves on exposure to heat. Thus, the presence of potash, lime, or oxide of iron confers upon it a greater or less degree of fusibility, while a larger proportion of silica renders it refractory.

Among the felspars which are important as constituent of rocks, the chief species are those known under the names of orthoclase, oligoclase, albite, labradorite, and anorthite.§ Although all

* For notices of prehistoric pottery, see Sir John Lubbock's "Prehistoric Times," 2nd Ed., 1869, pp. 16, 249, &c.

† In the genealogy of the tribe of Judah, a family of potters is mentioned as working for the king. 1 Chron. IV., 23.

‡ On this subject see also Mr. G. Maw's remarks in Appendix A., p. 213.

§ Although analyses show slight variations in the composition of these felspars, the following may be taken to fairly represent their general composition :—

	Silica.	Alumina.	Potash.	Soda.	Lime.	Magnesia.
Orthoclase[a]	65·24	18·57	14·02	1·25	0·34	0·10
Albite[b]	68·75	18·79	1·21	10·90	0·51	0·09[c]
Oligoclase[d]	63·94	23·71	2·17	7·66	2·52	—
Labradorite[e]	53·89	27·66	1·28	4·92	8·28	—
Anorthite[f]	45·14	32·11	0·22	1·06	18·32[g]	—

[a]From Baveno, analysed by Abich. [b]From the Riesengebirge, by Lohmeyer [d]From Warnbrunn, Silesia, by Rammelsberg. [e]From Obertstein, by Delesse. [f]From Hecla, by S. Von Waltershausen. [c]With 0·54 of protoxide of iron. [g]With 0·77 of protoxides of nickel and cobalt, and 0·31 of water.

felspars are liable to decomposition under certain conditions, and may thus yield clay-forming materials, it is observable that those species which are poorest in silica, and which contain much lime, are more readily decomposable than those which are richer in silica, and contain less lime, but more soda and potash. Thus it may be inferred that labradorite and anorthite are more subject to alteration than are the more highly silicated felspars, orthoclase, oligoclase, and albite, It is, however, the three latter which have yielded the base of all our ordinary clays, and of these again, orthoclase may perhaps be regarded as that species which has done so most abundantly. These felspars constitute a portion, often considerable, of large masses of such crystalline rocks as granite, porphyries, diorite, and the like,* as also of rocks derived from them by the agency of water, and afterwards distributed in beds and layers.

The more pure varieties of the finely comminuted matter forming clays are those which have been derived from rocks in which decomposed felspars are associated with other minerals which have resisted decomposition. Thus, for example, certain granites in which the felspar alone is decomposed, and the product reduced to a fine state of division so as to be readily removed in mechanical suspension by water passing over them, afford a fine sediment from the remains of the felspars alone, the other minerals having a tendency from their coarser state to remain behind. In this manner large masses of the decomposed remains of felspars may be carried into cavities or depressions, and be often covered with the other materials of the original rock, formed into a kind of fine gravel, and subsequently drifted over such masses. In this state the clay is usually white, and known as *kaolin*, from a similar name given to it by the Chinese.†

When, however, the remains of the decomposed felspars are washed into localities where they become mingled with other earthy matters in a finely comminuted state, or when they have been derived from a rock which contains decomposing hornblende, the resulting material is no longer white, but is variously coloured. Even when we suppose the purer varieties to have been deposited in the first instance, and to have formed distinct beds, as, for example, the clays of Bovey Heathfield in Devonshire, (see

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It is perhaps right to observe that although, according to the usual practice of mineralogists, the several felspars are here spoken of as so many separate species, it is nevertheless probable that only a few of them are specifically distinct. Thus, according to the views of Tschermak, the so-called species oligoclase and labradorite, are merely isomorphous mixtures in different proportions of albite and anorthite. Such a view tends to simplify the study of the group of felspars, and is supported by observations on their chemical constitution and crystalline form.

* *See* collection of British rock specimens in Upper Gallery.

† *See pp. 9 and 16.*

No. A. 15),* which appear to have been washed, with other detrital matter, and even trees, from the granitic region of a part of Dartmoor in previous geological times, it is easy to see that these clays may be again removed by atmospheric influences, rivers, and other abrading agents, and thus be rendered impure by the admixture of a variety of substances brought into intimate association with them by these causes.

Poole clay, so termed from being shipped at Poole in Dorsetshire, which is chiefly raised in the neighbourhood of Wareham, and is extensively employed in the British potteries, is an example of a tolerably pure clay (that is, one containing a large proportion of silicate of alumina, with free silica, but without injurious ingredients,) which has been accumulated far from any decomposing crystalline rocks, such as granites, porphyries, and the like. It is known also in the potteries as "blue clay."

Its geological position is in that portion of the tertiary or cainozoic beds (those occurring above the chalk) of Dorsetshire and Hampshire which corresponds with the Lower Bagshot sands of the London district. Its decomposed felspathic matter, affording the silicate of alumina, and a portion at least of the free silica, may readily have been derived from other beds, such as those of many sandstones, in which that matter may have been disseminated. Prior existing clays may also have been broken up and redeposited.†

It is not known when Poole clay was first worked. By an Order in Council of 1666, arising out of a dispute between Wareham and Poole, it is directed that no dues were to be paid

* "This (supracretaceous or tertiary) clay, which is stated to have been first worked about the year 1730 (Lyson's *Magna Britannia*, Devonshire, p. ccxci.), is shipped at Teignmouth for the potteries, and would appear to have been formed naturally much in the same manner as is now done artificially in Cornwall and Devon, though on a larger scale; decomposed granite having been washed down from Dartmoor into a lake or estuary, so that while the grosser particles were first lodged at its higher end, nearest the granite, the fine sediment was accumulated at the lower part. Large quantities of this material have been and still continue to be raised from the neighbourhood of Teigngrace and Whiteway and other places at that side of Bovey Heathfield. The mode of raising it is extremely simple, and generally consists in removing the gravel head, and sinking a large rectangular pit, the sides of which are supported by wood. As the pit is sunk, the workmen who cut out the clay in cubical or prismatic lumps, weighing from about 30 to 35 lbs. each, fling the pieces by means of a pointed staff from stage to stage, according to the depth; after which it is carried to the clay cellars, and thence forwarded when properly dried." "Report on the Geology of Cornwall, Devon, and West Somerset," by Sir H. T. de la Beche, F.R.S., 8vo., 1839. According to the Rev. John Templer, about 20,000 tons of clay were raised in 1822. The production in 1868 amounted to 45,000 tons, of the value of 20,250*l.* ("Mineral Statistics" for 1868, by R. Hunt, F.R.S.)

† Many of the British clays, termed *pipe-clays* from being used in the manufacture of tobacco-pipes, would appear to have been derived from the disintegration of stratified rocks, or those deposited by water. Mr. Maw has suggested that some of the finer white clays of the Lower Tertiaries may have been derived from the Chalk. (*See p.* 214.)

on "tobacco-pipe clay."* In an Act of Parliament obtained by Poole in 1756, the clay is termed "tobacco-pipe clay." Hutchings, in his *History of Dorsetshire*, published in 1774, mentions this clay as the chief article sent from "the Key at Wareham," and in 1796 about 10,000 tons of it were exported annually.† In 1831 the export of the clay had extended to 34,290 tons, and in 1851 it reached 69,286 tons, according to the clearances at the Poole Custom House; of this amount about 53,268 tons were employed in the manufacture of the finer kinds of earthenware, chiefly in the Staffordshire potteries, and 16,018 tons for ordinary stoneware, tobacco-pipes, alum-making, &c. In 1868 the amount exported from Poole was 58,007 tons, while the total quantity of pottery and other clays produced in Dorsetshire during that year amounted to 150,000 tons of the value of 3,750*l.*‡ In 1869 the quantity exported from Poole reached 60,210 tons.§

Composition of the body or paste.—The chief substance entering into the composition of the *body* or *paste*‖ of all pottery and porcelain is silicate of alumina, generally associated with certain alkaline and earthy silicates, and with more or less free silica. In the paste after firing, the amount of silica varies from 55 to 75 per cent., and the alumina from 35 to 25 per cent. Magnesia is introduced into certain pastes, chiefly in the form of the mineral termed *steatite* or *soap-stone;* it may often, however, be found in small quantity in clays, particularly where the beds contain lime derived from districts in which magnesian limestones may be intermixed with the more ordinary kinds.

Artificially prepared clays.—While common natural clays would afford ready materials for ordinary pottery, and all within reach would probably be employed in different districts, it could scarcely happen but that observation would lead to the use of some in preference to others.

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* For this and the following information respecting "Poole clay" we are indebted to Mr. William Joseph Pike, the chief exporter of that clay.

† The following is an extract from Hutchings' *History of Dorset* (edition of 1796). "Good tobacco-pipe clay is dug round this town (Wareham) at Arne Hill, Heneger Hill, Norden, &c. It formerly sold at 50*s.* a ton, but now at 14*s.* or 15*s.* Nearly 10,000 tons are annually exported to London, Hull, Liverpool, Glasgow, &c., but the most considerable part to Liverpool for the supply of the Staffordshire potteries, and to Selby for the use of the Leeds potteries. The principal pits are on Norden and Witch farms, the former belonging to William Moreton Pitt, and the latter to John Calcraft, Esq., and the clay taken from the same is in great repute with the Staffordshire and Yorkshire potteries from its peculiar excellence, and being the principal ingredient in the ware commonly called Staffordshire ware, so universally in use in this kingdom as well as in many other parts of Europe."

‡ "Mineral Statistics," by R. Hunt, F.R.S., 1869, p. 141.

§ "Mineral Statistics" 1870, p. 162.

‖ The prepared clay is commonly termed the *body* in this country; by the French authors and manufacturers it is known as the *pâte* or *paste*.

The artificial preparation of selected clays for pottery otherwise than by well washing and mixing them, does not, however, appear to have been practised in Europe until long after it was familiar to the Chinese, and indeed seems to have been adopted in European countries only in the early part of the eighteenth century, in order to produce a paste or body in imitation of that of Chinese porcelain.

Bodies or pastes of ancient pottery.—Judging from the analyses which have been made of the ancient pottery of Asia Minor, Egypt, Greece, Italy, and other advanced nations of antiquity, the pastes or bodies employed by them appear to have been little else than natural clays, selected for their fitness to the purposes for which they were intended. It has, indeed, been inferred that for the red ware some form of peroxide of iron was introduced into the paste, and certainly in some of the bodies this oxide is found in somewhat considerable quantity; but it should be recollected that certain clays do naturally contain a large proportion of this substance. In the paste of the celebrated Greek pottery of the Campania there is often much peroxide of iron, while the remainder of the paste has quite a normal character. The mean of eight analyses of this pottery (differing but little from one another) by M. Salvétat at Sèvres, was as follows:

Silica	55·88
Alumina	18·88
Peroxide of iron	15·80
Lime	7·48
Magnesia	1·63
	99·67

Physical characters of ceramic pastes.—Confining our attention to natural clays, we may regard the bricks and pottery made from them as varying in texture from those which are simply dried in the sun to those which are highly fired or baked in kilns at a considerably elevated temperature. In the former case the brick or piece of pottery is merely a dry piece of clay, the particles cohering slightly together;* but in the latter case a partial chemical change has been effected, which however slight in some instances, is yet sufficient to produce firm cohesion between the particles, so that when the piece which they collectively form is struck, a bell-like sound is emitted.

It will be obvious that sun-dried bricks or pottery, being merely pieces of desiccated clays, hardened only by the loss of hygroscopic

* The Egyptians of the present day continue to make sun-dried bricks much in the same manner as appears to have been the practice in the same land in ancient times, mixing straw or reed with their clay to assist in keeping the desiccated mass well together. The Israelites when in Egyptian bondage complained that they were compelled to make bricks without straw.

water, may be again reduced to the state of soft clay by the addition of the water lost by drying. This, however, is not the case with baked bricks or pottery, inasmuch as during the process of firing the chemical composition of the clay is altered, and the constitutional water is more or less completely expelled, thus leaving the silicates almost or even entirely anhydrous. As this water cannot be again introduced by the mere mechanical act of absorption, it follows that with well-baked bricks or pottery mixture of their powder with water does not produce a substance resembling the original clay from which the bricks or pottery were formed. The porosity of pottery may depend on the amount of firing, an incomplete baking tending to retain a portion of the clay in its natural state; or on the composition of the clay, together with the amount of heat employed.

It is also necessary to study the shrinkage of clays consequent upon drying and firing, since in this respect different clays vary materially.* The "fat" clays, as they are termed, those which are very unctuous and plastic, from containing little gritty matter and much water, usually shrink very considerably, while those which are "dry" or "lean," that is, more harsh to the touch from usually containing disseminated grains of sand and less water in the same bulk, better keep to the size and shape artificially given to them. Thus a piece composed of the first kind will commonly get out of shape and crack, while one made of the latter may retain its general form.

The shrinkage arises mainly from two causes; first, from the loss of water, which in a highly plastic paste may cause contraction to the extent of upwards of 15 per cent.; and secondly, if the body be formed of readily fusible substances, a further diminution of bulk arises from the closer juxtaposition of the component particles by incipient fusion; and this amounts frequently to from 10 to 15 per cent. From these causes it becomes essential that in pottery all portions of the clay employed should be of the same kind or composition, as otherwise the shrinkage would be unequal, and the vessels in baking would be distorted and cracked from that cause alone. In the employment of natural clays, therefore, it becomes needful to thoroughly knead and bake them, a process well understood by the ancient nations, judging from their better kinds of pottery.

Although natural clays may frequently have been employed singly, it could scarcely happen but that occasional experience, and often, probably, original design, arising from known variations in their plastic or other characters, induced the potters to mingle certain of them together, especially in districts where both

* See Mr. Maw's Appendix, p. 213.

"fat" and "dry" or "lean" kinds might be found near each other. In the operation of firing, the potters probably found such variations of fusibility in the clays employed as to lead them to mingle two or more together, so that a highly fusible paste would be modified by one found from experience to be more refractory.

Chinese porcelain.—Artificially prepared clays seem to have been first employed by the Chinese for their pottery or porcelain. The date at which the use of these prepared clays commenced in China appears uncertain. Indeed how far the clays may have been first used in their natural state, as found in the vicinity of decomposed granitic rocks, the natural process by which they were formed being afterwards artificially imitated, seems also uncertain. It might easily happen that the kaolin distributed in beds, or irregularly in hollows, first attracted attention; this kaolin being mingled with quartz in such proportions that if pounded the whole would constitute a material well fitted for the manufacture of porcelain. Be this as it may, it is certain that porcelain was manufactured in China at a very early date. According to the researches of M. Stanislas Julien,* the manufacture was commenced in the country of Sin-p'ing (province of Ho-nan) under the dynasty of Han, and therefore at some time between B.C. 185 and A.D. 87. In the year A.D. 600, porcelain was in common use, and in A.D. 1000 the art is considered to have attained its greatest perfection in China. Marco Polo, the Venetian traveller, saw the manufacture of porcelain as it was carried on at Kinsai, in the thirteenth century, and refers to the mining of at least a part of the materials employed, and to its being left exposed to atmospheric influences for many years, during which time it was never disturbed.

It is probable that the general composition of the artificially prepared clays employed by the Chinese for their porcelain has long remained the same, so that by an examination of those now employed we may obtain a fair knowledge of those formerly used. According to the Père d'Entrecolles, who resided, in the early part of the last century, at King-te-chin, the site of the great porcelain manufactories, the chief ingredients are *kao-lin*† and *pe-tun-tse*. It is generally believed that kaolin is the decomposed felspar above mentioned, but the definition of pe-tun-tse is involved in more difficulty. *Pe-tun* signifies a *white* paste, and the suffix

* "Histoire et Fabrication de la Porcelaine Chinoise; Ouvrage traduit du Chinois par M. Stanislas Julien," Paris, 1856. Translator's preface, p. xx.

† The term *kaolin* is said to be derived from *Kaouling* ("lofty ridge,") the name of a hill east of King-te-chin, whence some of the material is obtained. It is probable that some confusion has arisen in the application of the terms kaolin and pe-tun-tse, and that they are not used in Europe in the same sense as that in which they are employed in China.

tse is merely a diminutive applied to the material when made into the usual form of small cakes or bricks.* It appears indeed that several substances used in the manufacture of porcelain, prepared in the form of white tablets, pass under the common name of pe-tun-tse; but by D'Entrecolles the name was restricted to the fusible ingredient of the paste, and therefore has generally been considered to denote a substance resembling our Cornish *china stone*, which is an aggregate of felspar, usually more or less decomposed, and quartz, commonly associated with a talcose mineral; in fact, a disintegrated granitic rock resembling the *pegmatite* of certain authors.

Some of the Chinese clays are prepared merely by washing, but those materials which are derived from hard rocks require to be reduced to powder and then mixed with water, when the finer particles are carried off in mechanical suspension and gradually deposited in tanks. Steatite or soap stone (*hua she*, "slippery stone,") is also used by the Chinese in their porcelain, but the articles manufactured are stated to be rare and more than usually expensive.

The following analyses by MM. Laurent and Malaguti show the chemical composition of certain of the Chinese porcelains, the constitution of Chinese, like that of other porcelain, necessarily varying according to the intentions of the manufacturers as to the market for their wares.

	Paste or body of a white vase ornamented with painting.	Paste or body of a greenish white plate with blue ornaments.
Silica	70·5	63·5
Alumina	20·7	28·5
Potash	6·0	5·0
Lime	0·5	0·6
Protoxide of iron	0·8	0·8
Magnesia	0·1	trace
	98·6	98·4

Introduction of Chinese Porcelain into Europe.—Although vases and other pieces of Chinese porcelain found their way to Europe before the Portuguese had doubled the Cape of Good Hope in 1497, it was only after that event that this porcelain became well known to various European nations.† The Portuguese appear to have carried on a considerable trade in Chinese porcelain, as also did the Dutch, who succeeded them in a great part of their East Indian traffic. According to Mr. Marryat,‡ the earliest mention

* Similar blocks of a yellow earth are termed *hwan-tun-tse*, and those of a red material *hong-tun-tse*.

† The Portuguese introduced Chinese porcelain into Europe about 1520.

‡ "A History of Pottery and Porcelain, mediæval and modern." 3rd ed., London, 1868, p. 247. Rapin states that "in the year 1506, Philip of Austria and Jean, who

of China ware in England is in 1506. The English East India Company, formed in 1600, having at length obtained an establishment at the port of Gombron, opposite Ormus, in the Persian Gulf, imported Chinese porcelain directly from this port into England, and hence, according to some authorities, it became known as "Gombron ware." Mr. Chaffers, however, considers that the Gombron ware was a fine kind of Persian fayence.

First European Manufactory of Hard Porcelain at Meissen in Saxony.—The introduction of Chinese porcelain produced a strong desire to imitate it; but, although the ornamental designs were copied upon ordinary European wares, such as those of Delft, it is believed that no real advance was made towards the production of a similar paste until the discoveries of Böttcher in the eighteenth century.* Böttcher appears to have been an apothecary's assistant in Berlin, who fled into Saxony to avoid persecution on account of his supposed secret of making gold. It is related that when working in the laboratory of Tschirnhaus, an alchemist, at Dresden, some crucibles prepared by him assumed the character of Chinese porcelain. He at first worked at Dresden with a brown clay found near Meissen, and produced a red ware;† but it was not until 1709 that he made white porcelain. Though not of good quality, it was sufficiently successful to lead to the establishment of a manufactory at Meissen by Augustus II., Elector of Saxony and King of Poland, who had previously seen the importance of the subject, and had even confined Böttcher, though with every comfort, in the Albrechtsburg at Meissen, in order to prevent his escape and the consequent loss of the secret. In 1710, Böttcher was appointed director of the Meissen factory, and five years later he succeeded in making excellent porcelain. This manufactory has continued in existence to the present day, producing the fine porcelain known as Dresden china.

" had taken the title of King and Queen of Castile, left the Low Countries, and " embarked at Middleburgh for Spain. They set sail on the 10th of January, and " before they left the Channel their fleet was dispersed by a storm, and the ship on " board which they were ran into Weymouth. Sir Thomas Trenchard, the High " Sheriff, went to pay his respects to them, and they accepted his invitation to lodge " at his house at Wolveton." Hutchins, in his *History of Dorset*, states that "when " the King took his leave, he presented his host with some immense Delft-ware dishes, " and some bowls of *Oriental China*." Mr. Marryat says that "these are the " earliest pieces of Oriental porcelain known to us as having been brought to " England, with the exception of a curious basin or drinking-bowl of the pale sea- " green thick ware, called Archbishop Warham's (1504–1532)." Among the new year's gifts to Queen Elizabeth, 1587–8, Lord Treasurer Burghley offered one " porrynger" of "white porselyn" garnished with gold, and Mr. Robert Cecil, "a cup " of grene pursselyne."

* It is known, however, that a soft paste was manufactured at Florence as early as 1580.

† A double-handled cup and saucer, in Böttcher's red ware, will be found among the small collection of foreign specimens in the gallery on the western side. This piece may be assigned to about the year 1706.

Whatever were the clays with which Böttcher originally worked, it appears that he finally employed the kaolin of Aue, near Schneeberg, in the Erzgeberge. It is stated that he was led to its use by finding that some hair-powder furnished to him was heavier than the ordinary kind; and by experiment he then ascertained that this powder, substituted for the wheaten flour with which the true hair powder should have been composed, was the substance which he sought for the manufacture of his porcelain, being, in fact, dried and powdered kaolin.*

The greatest secrecy was adopted with respect to Böttcher's method of manufacture. The kaolin itself was sent in sealed barrels, by sworn persons, and its exportation was prohibited. The workmen were closely watched, and the establishment at the Albrechtsburg at Meissen was a complete fortress for the confinement of the parties employed. The injunction "Be secret until death" was written in the workshops. This secrecy continued even down to 1812, when on M. Brongniart's inspection of the works at the requisition of Napoleon I., it was found necessary to release M. Steinau, the director of the factory, from his oath, in order to explain the process adopted.

Origin of other Continental Porcelain Works.—Notwithstanding all the precautions taken, it happened in 1718, the year previous to Böttcher's death, that Stolzel, the chief workman at Meissen, escaped, and endeavoured to establish works at Vienna, with the aid and under the direction of a Belgian named Claude du Pasquier or Du Paquier. The latter obtained a licence for 25 years from the Emperor Charles VI., but was not able to raise the funds necessary for carrying on the works in a proper manner. These did not therefore advance until the manufactory was acquired for the State by the Empress Maria Theresa in 1744. A workman from the Vienna manufactory named Ringler, made, in 1740, good porcelain at the pottery at Höchst, a village on the Nidda, in the territory of Mayence.

The method of manufacturing the Meissen porcelain gradually spread. In 1750, porcelain manufacture was commenced at Berlin by a merchant named Wegely, who obtained the secret from the Höchst workmen. Gottskowski, a banker, succeeded in 1761, and advanced the works. Frederic II. bought them in 1763, and converted them into a Royal manufactory.

In 1758, a manufactory, which had been established at Neudeck, in Bavaria, in 1747, was transferred to Nymphenburg, near

* The statement is that John Schnorr, an iron-master, riding near Aue, observed that a soft white earth adhered strongly to his horse's feet. Considering that this earth might be used as a substitute for wheat-flour as hair-powder, he carried some away with him, and it was subsequently sold in large quantities for this purpose at Dresden, Leipsic, and other places. This kaolin continued long to be known as *Schnorrische weisse Erde* (Schnorr's white earth).

Munich. The St. Petersburg manufactory, founded by the Baron Yvan Antinovitsh in 1744, was enlarged in 1765 by the Minister Olsonfieff.

The celebrated Sèvres works were first established at St. Cloud, where, from 1695, a ware with a coarse yellow paste had been manufactured. From the account given by Dr. Martin Lister, who visited the St. Cloud works in 1698, it would appear that "there was no moulding or model of China ware which they had "not imitated; and they had added many fancies of their own, "which had their good effects, and appeared very beautiful." Réamur, who had obtained kaolin and pe-tun-tse from China, endeavoured to discover similar substances in France (1727 to 1729). Although he did not himself succeed in these researches, he nevertheless paved the way for the use of these substances at Sèvres when discovered. In 1745, a company was formed with privileges for 30 years, and the manufactory was established in the Château de Vincennes. These privileges were sold in 1753, and a third share having been taken by Louis XV., it obtained the title of a Royal manufactory. In 1756, the works were removed to Sèvres, more space being required in consequence of their progress; and in 1760, Louis XV. became the sole proprietor. Though the "soft porcelain"* had been made, as in England, for several years, the "hard porcelain," such as had been for a long time manufactured at Meissen, was not made at Sèvres until after the discovery of kaolin in France. This was first effected near Alençon by Guettard, who gave an account of it to the *Académie des Sciences* in 1765. The kaolin, however, was found not sufficiently good for the purposes required, but a year afterwards kaolin was accidently discovered at St. Yrieix, near Limoges, and having been ascertained to be both abundant and of good quality, the manufacture of hard porcelain was established at Sèvres in 1769.

Early English porcelain works at Fulham, Bow, and Chelsea.—With regard to our own country, it appears that evidence may be adduced tending to show that the manufacture of porcelain was commenced here at an earlier date than has usually been assigned to its introduction. As far back as 1671, Mr. John Dwight established at Fulham a manufactory for the production of porcelain. That the substance which he produced was strictly entitled to be called "porcelain" seems to be placed beyond doubt, not

* The terms "soft" and "hard" porcelain are often employed to distinguish the different kinds, but it may be doubted how far this is advisable, seeing that the different kinds pass so much from one into the other. "Hard" porcelain is more refractory than "soft," and is usually also less easily scratched. Not only as respects the body or paste, but also with regard to the glazes employed, the same distinctions prevail; the harder bodies being commonly covered with harder glazes.

only by his own descriptions in the patents which he obtained to secure his invention, but also by the testimony of contemporary writers. Thus Dr. Plot, in his *History of Oxfordshire*, published in 1677, mentions that Mr. Dwight "hath found ways to make an "earth white and transparent as porcellane, and not distinguish-"able from it by the eye or by experiments that have been "purposely made to try wherein they disagree." In support of Dwight's claims as the inventor of porcelain in this country, Mr. Chaffers has lately published * some extracts from certain memorandum books in the possession of Mr. C. J. C. Bailey, of Fulham, in which reference is made to some receipts, at present unpublished, for the manufacture of different kinds of "transparent porcelane or china cley."

The exact date of the early English porcelain manufactories at Bow and Chelsea is not definitely known, but it is generally supposed that the Bow works commenced about 1730.† From a patent ‡ taken out in 1744 by Messrs. Heylyn and Frye, who were interested in the Bow manufacture, we learn that in their process a glass is formed with one part of either "pott ash, fern "ash, pearl ash, kelp, or any other vegetable lixiviall salt," and "one part of sands, flints, pebbles, or any other stones of the "vitrifying kind;" this grit being reduced to powder is mixed with variable proportions of *unaker*, from which sand and mica have been removed by washing. The "unaker" here mentioned was a china-clay which had then recently been brought from America, but its use does not appear to have been long continued, for in another patent taken out in 1749 by Frye alone no mention is made of the use of unaker. With regard to the Chelsea works, Mr. Georley, who visited London in 1765, was informed "that "the county of Cornwall supplied them with the sort of earth fit "to make porcelain." § The sand used to render the clays perfectly "dry" is said to have been obtained from Alum Bay in the Isle of Wight, a sand which has been extensively employed in the manufacture of glass.‖ It is certain also that at the Chelsea works pounded glass was at first mixed with the clay and sand in order to imitate the transparency of the Chinese porcelain.

There is likewise some uncertainty as to the kinds of clay employed in some of the other earlier porcelain works of this

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* "Marks and Monograms on Pottery and Porcelain," 3rd ed., 1870, p. 661.

† Mr. Marryat points out that Dr. Martin Lister in 1698 alludes to a manufacture of porcelain (if such it could be termed, being little better than a kind of opaque glass,) at Chelsea.

‡ Specifications of Patents, No. 610, Dec. 6, 1744.

§ "Tour to London," Lond., 1772, vol. ii., p. 76.

‖ This sand forms part of the tertiary or cainozoic series of rocks occurring on the northern side of the Isle of Wight. It is worked and carried away in large quantities from Headon Hill, Alum Bay, for glass manufactories.

country. The natural kaolin of Bovey Tracey in Devonshire is stated to have been worked in 1730, and the clay of Wareham in Dorset, and other adjacent places, was exported, as before mentioned, at least as early as 1666.

Cookworthy's discovery of kaolin.—The great advance of the porcelain manufacture in England is due to the discovery of the kaolin of Cornwall by William Cookworthy of Plymouth about 1755. Borlase in his *Natural History of Cornwall* (1758) makes no mention of any Cornish clays employed in pottery; he merely notices that of Amalebria in Towednack, as likely from some experiments he had made, to be useful for porcelain, stating that there were other white clays at Tregonning Hill near Breague. He also notices other clays as fitted for the purpose, and mentions that W. Cookworthy had made experiments on the Breague China-stone, and that it had been found useful in the manufacture of porcelain. Cookworthy apparently had his attention directed to the subject by an American, who showed him samples of China-stone and kaolin from Virginia in 1745.* He afterwards found these substances in Cornwall, and eventually worked both, in conjunction with Lord Camelford, on property of the latter in the parish of St. Stephen's. Pryce in his *Mineralogia Cornubiensis*, published in 1778, states that artificial kaolin (China clay) was then prepared in the parishes of Breague and St. Stephen's by repeated washings with clear water, and afterwards packed in casks and sent off,† and that Mr. Cookworthy, by his late improvements at his porcelain manufactory then established at Bristol (having been removed thither from Plymouth), was likely to produce ware which should rival the best Asiatic China. Cookworthy's patent was sold in 1774 to Mr. Champion of Bristol.‡

* Prideaux's "Relics of William Cookworthy," 1853, p. 12.
† "Mineralogia Cornubiensis," p. 32.
‡ See notices of the Plymouth and Bristol Works, pp. 163 and 166.

Raw Materials

Employed in the Manufacture of Pottery and Porcelain.

[See specimens in lower compartment of Pedestal Case No. 53; east side.]

Kaolin and other clays.—Kaolin, or China clay, is now chiefly prepared in Cornwall from the granite in the neighbourhood of St. Austell and St. Stephens, from the north side of Tregoning Hill, near Breague, at Towednach, near St. Ives, and at St. Day, near Redruth; while in Devon it is worked at Lee Moor and at Meavy on the south side of Dartmoor. Although the method of preparing kaolin is sufficiently simple, much care is at the same time required to obtain the substance in as pure a condition as possible. The presence of iron has particularly to be avoided, as many of its compounds would tend to colour the paste of the porcelain or the earthenware into the composition of which they might enter.

In preparing kaolin those localities are selected where water can be readily procured, and where the rock is in a very friable state owing to the decomposition of its felspar. The exact natural conditions under which this disintegration has been brought about are not well understood. The less of foreign minerals the rock may contain, and the harder, the heavier, and the less decomposed these may be, the better. The disintegrated rock, usually containing much quartz, is generally exposed on an inclined plane to a fall of a few feet of water, which washes it down to a trench, whence it is conducted to catch-pits. The quartz, and the schorl, mica, or other minerals which may be present, are in great measure retained in the first catch-pit; but there is usually a second or even third pit in which the coarser portions are collected before the water charged with the finer particles of the decomposed felspar in a state of mechanical suspension is allowed to come to rest in the tanks or ponds prepared for the purpose. In these the kaolin is permitted to subside, the supernatant liquid flowing off in another direction; and by a repetition of this process the tanks become nearly filled with kaolin in the state of a soft clay. Formerly this clay was dried by simple exposure to air at the ordinary temperature, but artificial heat is now usually employed. Thus at the Lee Moor Works the semi-fluid clay is removed to a series of clay-pans heated by hot-water pipes, and when sufficiently dry is cut into rectangular blocks, which are then transferred to a building artificially heated, where they become properly dried for sale. When sufficiently dry, the outsides of the lumps are carefully scraped, and the pieces of kaolin sent to the potteries.

The kaolin of Cornwall and Devon varies much in quality, according to the character of the substances worked and the care employed in their preparation. In 1868 the quantity of kaolin produced in Cornwall was 100,000 tons and in Devon 12,000 tons; the value of the former was 91,666*l.*, and that of the latter 9,600*l.** In 1869 the production of kaolin amounted to 105,700 tons.†

A. 1. SILICA, or silicic anhydride, in the form of rock crystal, representing one of the proximate constituents of clay.

A. 2. ALUMINA, in the impure form of emery, representing another constituent of clay.

It is right to note that in emery the alumina is associated with much ferric oxide, or peroxide of iron, sometimes even to the extent of half its weight. Lime and silica are also usually present. Purer forms of native alumina are furnished by the minerals corundum, ruby, and sapphire, specimens of which will be found in the central horse-shoe case. Aluminic silicate, or silicate of alumina, associated with alkaline and alkaline-earthy silicates, enters into the composition of all the minerals which are grouped together under the general name of *felspar*, and which by their partial decomposition yield clay-forming materials.

A. 3. ORTHOCLASE, or Potash Felspar; essentially a double silicate of alumina and potash (potassic-aluminic silicate), but usually containing small quantities of soda, lime, peroxide of iron, and other bases. (*See* analysis on p. 3.)

Orthoclase is the most common species of felspar, and enters largely into the composition of granite and many other crystalline rocks. It is to the alteration of the felspathic components of certain rock-masses that the purer forms of clay generally owe their origin. (*See* pp. 3 and 214.)

A. 4. GRANITIC ROCK, with its felspar partially decomposed, from which the kaolin is prepared at Gunbarrow, St. Austell, Cornwall.

A. 5. KAOLIN,‡ or Cornish china-clay, from Gunbarrow, St. Austell, Cornwall.

A. 6. KAOLIN, from Bluebarrow, St. Austell, Cornwall.

The following analyses of Bluebarrow and St. Stephens kaolins were made by Dr. Lyon Playfair at the laboratory of this Museum, in 1852:—

Clays dried at the temperature of 212° Fahrenheit.

	Blue-barrow.	St. Stephens.
Silica	45·52	46·38
Alumina, with peroxide of iron	40·76	38·60
Lime	2·17	3·47
Potash, with trace of soda	1·90	1·77
Magnesia, phosphoric acid, and sulphuric acid	traces	traces
Water, with a small quantity of organic matter	9·61	9·08
	99·96	99·30

A. 7. KAOLIN, from St. Stephens, Cornwall.

A. 8. KAOLIN, from Carnbean, St. Austell, Cornwall.

A. 9. KAOLIN, from Stents, St. Austell, Cornwall.

A. 10. KAOLIN, from Huel Prosper, Roche, Cornwall.

A. 11. KAOLIN, from Park-an-Dillac, St. Dennis, Cornwall.

Nos. A. 4 *to* A. 11 *presented by Arthur Phillips, Esq.*

A. 12. DECOMPOSED GRANITIC ROCK, from which the kaolin is prepared at the Morley or Lee Moor clay works, near Slaugh, Devon.

A. 13. KAOLIN (quality B. B.), from the Morley or Lee Moor clay works, Devon.

A. 14. KAOLIN‡ (quality P.), from the Morley or Lee Moor clay works, Devon.

Nos. A. 12 *to* A. 14 *presented by Earl Morley.*

* "Mineral Statistics" for 1868, by R. Hunt, F.R.S., p. 141.

† "Mineral Statistics" for 1869, p. 161.

‡ *Kaolinite* is the name proposed by Messrs. Johnson and Blake for a species *including native kaolin* and several allied minerals.

A. 15. BOVEY CLAY, or Teignmouth clay; a natural kaolin from Bovey Heathfield, Devonshire.

For a description of this clay, which is largely exported from Teignmouth for the use of the potters, see p. 5.

The following is an analysis of Teignmouth clay made in the laboratory of this Institution by Mr. W. Weston:—*

Silica		52·06
Alumina		29·38
Potash		2·29
Lime		0·43
Magnesia		0·02
Protoxide of iron		2·37
Water	combined	10·27
	hygroscopic	2·56
		99·38

A. 16. POOLE CLAY, or "Blue Clay," from the neighbourhood of Wareham, Dorsetshire.

For a description of this clay, which is largely exported from Poole to the potteries, see p. 5.

The following is an analysis of Poole clay made in the laboratory of this Institution by Mr. W. Weston:—†

Silica		48·99
Alumina		32·11
Potash		3·31
Lime		0·43
Magnesia		0·22
Protoxide of iron		2·34
Water	combined	9·63
	hygroscopic	2·33
		99·36

A. 17. POOLE CLAY. Quality used for tobacco-pipes.

A. 18. POOLE CLAY. Quality used for fine earthenware.

A. 19. POOLE CLAY. Quality used for stoneware.

A. 20. POOLE CLAY. Quality used for the manufacture of alum.

Nos. A. 17 *to* A. 20 *presented by Messrs. W. and J. Pike, of Wareham.*

A. 21. STOURBRIDGE CLAY, a highly refractory "fire-clay," from the coal-measures of Stourbridge, Worcestershire; used for fire-bricks, crucibles, saggers, &c.

The following analysis of Stourbridge clay was made by Mr. C. Tookey in the Metallurgical Laboratory of this Institution, under the direction of Dr. Percy:—‡

Silica		65·10
Alumina		22·22
Potash		0·18
Lime		0·14
Magnesia		0·18
Protoxide of iron		1·92
Phosphoric acid		0·06
Water	combined	7·10
	hygroscopic	2·18
Organic matter		0·58
		99·66

An extensive collection of the clays and other plastic strata of Great Britain, collected and presented by George Maw, Esq., F.G.S., F.S.A., &c., is arranged in the lower compartments of the pedestal cases Nos. 4, 5, 52, 53, and 55. A special catalogue of this collection, prepared by Mr. Maw, and containing much descriptive matter, is published in Appendix A. (*See* p. 213.)

China stone.

The china-stone of Cornwall, which is largely exported to the potteries, is a disintegrated rock consisting usually of a mixture of quartz, partially decomposed felspar, and scales of a greenish-yellow talcose mineral. The extent to which the felspathic constituent has suffered alteration varies

* Dr. Percy's "Metallurgy," vol. i., 1861, p. 214, where will be found a large number of analyses of clays.

† *Op. cit., p.* 215.

‡ *Opt. ci., p.* 214.

materially in different varieties of china-stone, but the felspar always retains more or less of its alkaline silicate, which thus renders the rock fusible. It is generally assumed that china-stone represents the disintegrated granitic rock which, in a more advanced state of decomposition, furnishes kaolin ; but the relation between the china-stone and china-clay is still somewhat obscure. The china-stone is quarried chiefly from the granite of St. Stephens, in Cornwall, which furnishes also some of the best kaolin. In quarrying the stone, those parts should be avoided in which it becomes intermixed with schorl, or black tourmaline, a mineral somewhat common in the granite of which the china-stone forms a portion. The stone requires no preparation before being sent to the potteries, but when quarried is merely broken into pieces of a size convenient for carriage In 1868 the produce of china-stone in Cornwall was 29,000 tons, of the value of 23,200*l.**

A. 22. CHINA-STONE, from St. Stephens, Cornwall ; composed of quartz, slightly decomposed felspar, and a talcose mineral.

A. 23. CHINA-STONE, from St. Stephens, Cornwall, the felspar being in a more advanced state of decomposition.

A. 24. CHINA-STONE, from Restourack, St. Dennis, Cornwall.

A. 25. CHINA-STONE, from Tregonning Hill, near Breague, Cornwall.

Nos. A. 22 *to* A. 25 *presented by Arthur Phillips, Esq.*

Flints.

Although natural clays are extensively employed in the manufacture of British pottery, such, for example, as the Bovey and Poole clays previously mentioned, yet they are usually mixed, to a greater or less extent, with the artificially-prepared kaolin of Cornwall and Devon, the proportions varying according to the kind of earthenware or porcelain required. Grains of silica are always mechanically mingled with the clays, and these are now commonly derived from finely-pounded flints. The flints† are obtained from the chalk districts from which there is the cheapest carriage. Those which are black are usually preferred. They are first calcined or burnt in a kiln to render them easily broken, and they are then stamped or crushed, and being afterwards mixed with water are reduced to the consistency of cream by grinding in circular pans, the bottoms of which are commonly paved with some hard stone, generally chert, over which heavy stones of the like kind are driven round by machinery, and

* Mineral Statistics for 1868, by R. Hunt, F.R.S., p. 141.

† The introduction of flints into the manufacture of pottery is attributed to Mr. Astbury, a Staffordshire potter of great enterprise, who, in 1720, riding to London on business, as was then a common practice, found his horse's eyes disordered before he reached Dunstable. On arriving at the inn in that town he consulted the ostler, who placed a small flint in the fire, heated it to redness, and, after throwing it into water, pulverized it. He then blew a little of the powder into the horse's eyes. The attention of Mr. Astbury was arrested by the process of reducing the flint to powder, and observing the white character of the latter, he had some flints sent to Shelton, "where," according to Dr. Shaw (*Chemistry of Porcelain, Glass, and Pottery*, 1837, p. 248), "on his return home he had them "fired after the ware was baked; then pulverized in a large mortar, and in the state of "powder mixed with pipe-clay in water, with which he *washed* the inside of his hollow "ware. Ultimately it was introduced into the body."

the flints are thus ground in water between them. When taken out of these pans the creamy-looking mixture is placed in a reservoir, often termed an *ark*, where the pounded flint settles and the water is drawn off.

A. 26. FLINTS, from the chalk.

A. 27. FLINTS, calcined in a kiln.

A. 28. FLINTS, stamped and crushed.

A. 29. FLINTS, after having been ground in the mill.

Nos. A. 26 *to* A. 29 *presented by Lewis Dillwyn, Esq., M.P.*

A. 30. CHERT, from the Carboniferous Limestone, Gronant, Talacre, Flintshire; used for paving the flint-grinding mills in the Staffordshire potteries.

Presented by Sir Pyers Mostyn, Bart.

MANUFACTURE OF EARTHENWARE AND PORCELAIN.

[See specimens in lower compartment of Pedestal Case No. 53; east side.]

Manufacture of Earthenware.

With respect to the manufacture of common earthenware, one which is carried on in England on a vast scale, not only for home consumption but also for exportation,* the following sketch of the processes usually employed may be useful to the visitor.

The *common body* is generally composed of Dorset or Poole clay, Cornish or Devon kaolin, and flint.

The *best body* is formed of Dorset or Poole clay, Cornish or Devon kaolin, Cornish china-stone, and flint.

The Dorset or Poole clay, which may be regarded as the base or chief ingredient in the manufacture of English earthenware, is mixed with water, and reduced to a state in which it can be passed through sieves of various sizes, in order to free it from lumps, and to render it of a fine uniform consistency. The kaolin requires no preparatory cleaning, and the flints are used as they come, finely comminuted from their deposit in water after passing the grinding mills. The china-stone requires to be crushed and reduced to a fine powder in mills, its treatment being indeed similar to that of the flints, with the exception of its not requiring calcination or burning in kilns.

All the materials being thus ready for use, the proportions of each considered requisite for the kind of ware about to be made are mixed with water and with each other, and the mixture taken to the *slip kiln*, a long brick trough heated by means of flues from a furnace. Here it is kept simmering until it acquires somewhat the consistency of dough. In

* According to M. Arnoux (*Lectures on the Results of the Great Exhibition of* 1851, vol. ii.—"Lecture on Ceramic Manufactures"), the value of the export of English earthenware in 1851 was 1,062,000*l.* The number of pieces exported, including those of British porcelain (the value of which was 60,000*l.*), was 84,000,000. M. Arnoux states that in 1852 there were 185 factories engaged in the manufacture of earthenware and porcelain; 52 scattered over the country at Leeds, Stockton, Sunderland, Glasgow, Swansea, &c., and 133 in North Staffordshire, where 60,000 persons were more or less occupied in this manufacture in the districts commonly known as the "Potteries."

this state it is ready for use, and is placed, until required, in cold dark cellars. If coloured bodies or pastes are required, so as to give a general tint to the ware, certain metallic oxides, or coloured clays or marls, are added to the prepared mixture.

The body or paste of mixed materials being now prepared, it is either *thrown*, as it is termed, by means of the potter's wheel (see p. 25), that is, raised into circular forms of different kinds by means of the rotary motion of the wheel, and by the action of the fingers; or it is *moulded* into forms, in the latter case the paste being first rolled into flattened pieces, which can be easily squeezed into a mould, commonly of plaster of Paris. When thought desirable the "thrown" forms are finished by placing them on a lathe and turning them into more accurate shapes.

The various forms having been completed, the pieces are taken to be carefully dried in rooms prepared for the purpose, in order to deprive them as much as possible of moisture. Indeed the water is to be regarded only as a tool in the manufacture, a vehicle of plasticity to be laid aside when no longer required.

Having been thus sufficiently dried, the pieces of earthenware are placed in large flat-bottomed pans, oval or round, as may be considered desirable, with vertical sides of sufficient height; these cases are termed *saggers*, and are made of refractory materials, such as fire-clays, broken pieces of earthenware after the first firing, and also of broken saggers themselves, pounded up, and often mixed with a small portion of damaged Dorset, Devon, or Cornish clays. In these saggers the dried pieces are so placed as to allow as many as possible to be packed without injury to one another. The saggers are then arranged in a kiln, termed the "biscuit kiln," one above another, so that an upper covers a lower sagger. The kiln is then "*fired*," that is, the proper heat is communicated to it, and the fire is continued for about three days; for instance, a kiln fired on Monday evening will be ready to be "*drawn*," or the saggers and their contents removed on Friday morning. The ware is then in the condition of *biscuit*, being white and porous, and readily absorbing water.

This "biscuit" may now be painted with certain colours, which can be used *under the glaze*, that is, before it is covered with a preparation which in another "firing" forms a coating of glass, or it may receive transfers from engravings, thus producing *printed ware*. The colours which can be advantageously used "under the glaze" are few as compared with those employed above it.* In the latter case the paints used are enamel colours, that is, glasses of different kinds mixed with metallic oxides which give the required colour.† The printing is but the employment of the colours that can be advantageously used "under the glaze," mixed with oil, and worked as ordinary printing ink for engravings. Care is required in manipulating the paper from which the print is transferred to the "biscuit," and in dexterously removing the paper after its application,

* Cobalt blue, chrome green, &c., may be used under the glaze, as they are not altered by the heat of the *gloss* or *glazing kiln*. Red from peroxide of iron, cannot be thus applied, as the heat of the kiln converts the red into brown or black.

† These glasses are in general more readily fusible than is the kind of glaze employed, so that the latter is not injured by the firing, the enamel colour simply covering and sufficiently uniting with it. The glaze itself can be coloured with various metallic oxides. (*See* p. 53.)

so that the impression be not injured. To drive off the oil used as a vehicle for the colours, the ware after "printing" is exposed to a low heat in a kiln termed the *hardening kiln*, after which it is ready to be glazed. The materials of the glaze, which may vary according to the practice at different potteries, are mixed with water, so as to form a substance of about the consistency of cream. Into this liquid the earthenware, either painted with colours which will not suffer by the heat of the kiln into which it is next placed, or printed with colours of the like kind, is dexterously dipped. Upon removal all traces of the colouring are lost under a thin general coating of the finely-comminuted materials of the glaze, the water being readily absorbed by the porous "biscuit ware." It is now placed in saggers and exposed for about a day in the *gloss kiln*, as it is termed, where it is subjected to a lower temperature than in the biscuit kiln, but at the same time a temperature sufficiently high to fuse the coating upon the ware, and so form a glass, which by its transparency discloses the painting or printing beneath, while by its imperviousness it prevents the access of liquids to the porous body. The earthenware is then ready for the market.

B. 1. MATERIALS for the paste of earthenware, mixed and ready for use.

B. 2. PIECE of ware thrown on the potter's wheel.

B. 3. PIECE of ware thrown and turned, ready for firing in the "biscuit kiln."

B. 4. PIECE of ware, in the state of "biscuit," as taken after "firing" from the "biscuit kiln."

B. 4. PIECE of biscuit ware, with flowers painted in colours that may be used under the glaze.

B. 5. PIECE of biscuit ware, printed in blue with Chinese pattern transferred from a copper-plate engraving.

B. 6. PIECE of printed ware coated with a glaze after firing in the "gloss kiln," and now ready for the market.

B. 7. ENGRAVINGS from copper plates, on thin paper, to be transferred to biscuit ware.

Nos. B. 1 to B. 7 presented by Lewis Dillwyn, Esq., M.P.

"*Dip Ware.*"

While referring to the manufacture of earthenware mention should be made of a very ingenious method, apparently in use long before the present white earthenware was invented, commonly termed *dipt* or *dip ware*. This kind of earthenware is still made, although not to so great an extent as formerly, "printed" and "biscuit painted ware" being able to advantageously compete with it in lowness of price. In the manufacture of this ware, the body or paste after having been prepared as usual, and "thrown" on the wheel to the required form, is handed over to the "dip turner." This workman having received the "thrown" piece (a mug for instance) in its rough state, places it on a lathe, and takes off its inequalities, even giving it a pattern, if thought desirable, by engine turning. Having coloured clays (either natural or artificially prepared) of the consistency of cream in a vessel with a spout that can be varied in form, he blows into

this vessel through another tube, and thus forces the creamy clay out of the first-mentioned spout upon the piece of clay turning slowly on his lathe. In this manner rings of coloured clay can be deposited on the revolving piece of ware, and by dexterously dropping portions of the creamy clays, patterns of different kinds and of different colours may be produced, great variety of design being thus obtainable. The arborescent or dendritic forms are also usually produced by the "dip turner," who after covering the turned piece of the original paste or body with an evenly-spread coating of his "dip" compound in its creamy condition, drops upon it, before it becomes dry, another kind of "dip" compound, having a greater density than the first, and thus, by holding the piece so that the heavier compound or colour can descend amid the moist first-spread "dip" he permits it to disseminate its particles in an arborescent form. The pieces thus prepared are then merely fired in the "biscuit" kiln, and glazed in the "gloss" kiln for the market.

B. 8. PIECE of raw material, thrown, turned, and ribbed by coloured clays.

B. 9. PIECE of ribbed ware after firing in the biscuit kiln.

B. 10. MUG, thrown and turned, with arborescent pattern in coloured clay, produced as described above.

B. 11. MUG, with arborescent pattern, in state of biscuit, after firing in the biscuit kiln.

B. 12. MUG with arborescent pattern, glazed after firing in the gloss kiln, and now ready for market.

Nos. B. 8 to B. 12 presented by Lewis Dillwyn, Esq., M.P.

Manufacture of Porcelain.

The manufacture of porcelain bears a general resemblance to that of earthenware, the differences relating chiefly to the composition of the pastes or bodies and of the glazes, to the arrangement of kilns by which the more refractory materials are exposed to higher temperatures, and to muffles or kilns for firing the various enamel colours employed upon the different forms given to the porcelain.* According to the analyses of M. Laurent, the general composition of the Sèvres porcelain, from 1770 to 1836, was :—

Silica	58·0
Alumina	34·5
Lime	4·5
Potash	3·0
	100·0

The paste used for printing upon, in 1843, was nearly the same, containing :—

Silica	58·03
Alumina	33·94
Lime	4·58
Potash	2·97
	99·52

* Excellent details as to the manufacture of the Sèvres porcelain will be found in Brongniart's "Traité des Arts Céramiques."

The substances usually employed to form the paste or body are kaolin,* china-stone, plastic clay from Abondant on the eastern edge of the Forêt-de-Dreux, the silicious sand (nearly pure silica) of Aumont, near Creill, and chalk from the Colline-de-Bougivall.

According to the analyses of M. Laurent, the composition of the Meissen (Dresden) porcelain of 1825 chiefly differed from that of Sèvres in containing scarcely any lime, but more potash, as will be seen by the following analysis:—†

Silica	57·7
Alumina	36·0
Potash	5·2
Lime	0·3
Protoxide of iron	0·8
„ manganese	traces
	100·0

In the composition of the Berlin porcelain of 1808, the proportion of silica was greater, while the per centage of potash was lower than in the Meissen, but higher than in the Sèvres porcelain. The following is an analysis of Berlin porcelain by M. Laurent:—‡

Silica	66·6
Alumina	28·0
Potash	3·4
Protoxide of iron	0·7
„ manganese	0·6
Lime	0·3
	99·6

The chemical composition of the various kinds of English porcelain has

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* The kaolin used at Sèvres came from St. Yrieix-la-Perche, 26 kilometres to the south of Limoges.

† The materials employed for porcelain of ordinary domestic use were:—

Kaolin from Aue	18 parts
Kaolin from Sosa	18 „
Kaolin from Seilitz	36 „
Felspar (Pegmatite?)	26 „
Broken biscuit porcelain	2 „

The Aue kaolin is now exhausted.

For finer kinds employed for ornamental purposes:—

Kaolin from Seilitz	37
Quartz	37
Lime from Pirna	17·5
Broken biscuit porcelain	8·5

‡ The materials used in the manufacture of Berlin porcelain are as follow:—

For domestic use.		For ornamental purposes.	
Kaolin from Morl	76	Kaolin from Morl	25
Felspar	24	Kaolin from Beidure	50
		Felspar	15
		Pure (silicious) sand	10

not hitherto received much attention. Two kinds of English soft porcelain have been analyzed by Mr. Couper with the following results :—*

	I.	II.
Silica	39·88	40·60
Alumina	21·48	24·15
Lime	10·06	14·22
Protoxide of iron } Phosphate of lime }	26·44	15·32
Magnesia	—	0·43
Alkali and loss	2·14	5·28
	100·00	100·00

The ingredients employed in the manufacture of English porcelain are commonly Cornish or Devon kaolin, Cornish china-stone, and flint, with prepared bones.† According to Aikin, the following was the composition of the body or paste of a Staffordshire porcelain, about the year 1840 :—

Cornish kaolin	31·0
Cornish china-stone	26·0
Flint	2·5
Prepared bones	40·5
	100·0

M. Arnoux considers that the soft porcelain commonly manufactured in England is nothing but that which is otherwise termed "hard," modified by the presence of the phosphate of lime (tricalcic phosphate) contained in the bones.‡

Potter's Wheel.

As the potter's wheel is and has been so important an aid in the manufacture of pottery and porcelain, a slight notice of its progress among mankind may be desirable. After much discussion on the subject it would appear probable that the potter's wheel, like so many other things connected with the ceramic art, was derived from China. M. Brongniart§ infers that the potter's wheel, after leaving China, where it had been long known, passed into Egypt by Scythia and Bactria, and through Scythia or Egypt itself to the Arabs of the Arabian peninsula and of Africa. He also considers that the evidence tends to show that it was introduced through Scythia, and nearly at the same time into Greece and its colonies in Southern Italy, reaching Etruria at a later date, and that it spread over the whole of Southern Europe, Rome, and its colonies, Spain, &c., as these countries became civilized and acquainted with the arts of the East, stopping at the southern part of Germany, and only partially entering it,

* "Philosophical Magazine," vol. xxxi. (N.S.), 1847, p. 440.

† In 1800 Spode introduced calcined bones into the body or paste of his porcelain at Stoke-upon-Trent. The bones now used are obtained chiefly from Ireland and America.

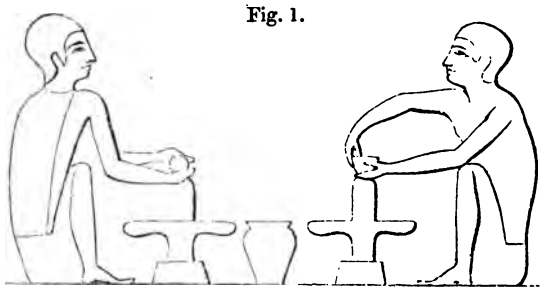
‡ "Lecture on Ceramic Manufacture." As to the action of bones, M. Arnoux remarks that when the other materials "begin to combine at a certain heat, the bones being phosphate of lime, which cannot be decomposed by the silica, melt, without combining, into a sort of semi-transparent enamel, and being intimately mixed in the mass, give transparency in proportion to the quantity used."

§ Brongniart, "Traité des Arts Céramiques," 2nd ed., vol. i. p. 23.

and that while penetrating into Gaul, it remained unknown among the ancient Scandinavian nations.

Representations of the potter's wheel in the tombs at Thebes, as in the following figure (fig. 1), show that the ancient method of employing it in Egypt was much the same as that common in most countries at the present day.

Fig. 1.



GLAZES.

[See specimens in Pedestal Case No. 5 ; west side.]

The porosity of ordinary pottery, however valuable in hot climates for the purpose of cooling liquids,* seems early to have suggested the use of a glazing or thin glass covering, for the purpose of rendering it impervious to fluids. In the present state of our knowledge it would appear difficult to fix a probable date for this invention, or even to attribute it to any locality. As regards the potter's art, so little is known of the early intercourse of the Chinese with the nations adjoining them, and of these again with the more western nations of antiquity, that even supposing the view taken of the progress of the potter's wheel to be approximately correct, and that early Chinese pottery was glazed, so that a knowledge of a process by which a glaze was formed would travel with the wheel, we still remain in doubt as to how far the first glazing of pottery can be traced to that people. The early Chinese glazes do not appear to be known. Those which we see upon their ancient porcelain would seem to be derived from the same substances as those now employed, namely, mixtures in which felspar forms a chief ingredient, and which usually require "high firing," or considerable heat to melt them. Such glazes would be little applicable to the ware of those ancient nations whose pottery has become known to us,—ware which for the most part is not of a very refractory kind. At the same time, although this kind of glazing may not have been applicable, even supposing the necessary materials could be obtained, or that a knowledge of them so far existed as to lead to their discovery in other lands than China, a piece of glazed pottery of any kind could not fail to show the importance of a glaze, and produce a desire for its imitation.

* Probably this application of unglazed ware was known in early times, seeing that the comparative coolness of water in porous vessels, from the reduction of temperature consequent upon the evaporation of the water percolating through their walls, would have been readily observed and appreciated in warm climates.

The composition of glazes requires to be such that when they are exposed to the heat necessary for vitrification they shall unite with the paste or body, and that in cooling they shall not split, crack, or *craze*, in consequence of their contracting during firing to such an extent that they cannot, when fired, completely cover the pottery or porcelain beneath. The glassy substances employed as glazes,—metallic silicates and borates,—firmly unite with the paste or body beneath, and thus a complete union is effected. The substances commonly used in the production of glazes are quartz, flint, felspar, gypsum (hydrous sulphate of lime, or calcic sulphate), borax (hydrous biborate of soda, or sodic diborate), boric acid, common salt (sodic chloride), potash, soda, and red oxide of lead. Some glazes are first formed into *frits*, or imperfectly vitrified bodies, and then pounded for use. Coloured glazes are formed with the addition of certain metallic oxides, such as those of manganese, copper, iron, chromium, cobalt, &c. Opaque glass or enamel is made with oxide of tin, and sometimes with phosphate of lime or with arsenious acid.

Egyptian Glazes or Enamels.

When or wherever the use of glazes may have originated, it is certain that they were employed at an early period in Egypt.* It would appear that the ware made, like ordinary unglazed Egyptian pottery, from the common clay of the Nile, would not readily adhere to such glazes or enamels as the Egyptians employed; and hence arose the necessity for introducing a different material, when it was proposed to glaze the surface. Accordingly we find that their small glazed figures and other ornamental objects are composed in the interior of grains of sand cemented together by some vitreous matter, commonly silicate of soda. Such a body could have, as Dr. Birch remarks, very little plasticity; but although thus ill-suited to be worked on the lathe, it was readily stamped in moulds, and it is therefore by this means that most of the objects were formed. The greenish, greenish blue, and blue glazes frequently seen on Egyptian ware are due to a silicate of protoxide of copper and soda; this cupreous enamel appears indeed to have been that most largely employed. Glazed bodies of this character are known as old as the sixth dynasty.† This glazing was not, however, confined to such compositions, for scarabæi and other figures are found carved in a steatitic material, which has evidently been dipped in a similar glaze and fired, the steatitic substance readily resisting the heat required for fusion of the glaze.

C. 1. } EGYPTIAN SEPULCHRAL
C. 2. } FIGURES, formed of a frit coated with a pale blue cupriferous glaze, applied after the figure had been moulded.

These figures, called *shabti* or *shabshab*, represent the deceased enveloped in bandages. The body is stamped with an inscription in hieroglyphics. Each figure is mounted on a plinth, and supported at the back by a flat column.‡

* "Opaque glasses or enamels, as old as the XVIIIth dynasty, and enamelled objects as early as the IVth, have been found in Egypt." "History of Ancient Pottery," by Samuel Birch, F.S.A., 1858, vol. i. p. 6.

† "History of Ancient Pottery," by Samuel Birch, 1858, vol. i. p. 68.

‡ For a full description of such figures, see Dr. Birch's "Ancient Pottery."

C. 3. SEPULCHRAL FIGURE, coated with greenish-blue cupriferous glaze.

In this specimen the stamped inscription is confined to the dorsal pillar.

C. 4. SEPULCHRAL FIGURE, with light-coloured glaze, tinted in places pale green.

The surface presents a number of vesicular cavities, which seem to indicate that it has been subjected to a fair amount of firing.

C. 5. to C. 8. SEPULCHRAL FIGURES, of a similar character to the previous specimens, broken to show the kind of paste or frit of which they are composed.

According to analyses made in the laboratory of this establishment, the white interior is composed of fine sand cemented by silicate of soda; the soda was probably introduced in the form of a carbonate (derived perhaps from the Natron Lakes), and having been mingled with the sand, the mixture was fired. The glazed frits are often known as Egyptian "porcelain."

C. 9. SEPULCHRAL FIGURE of Ankh-har, Governor of the South; in bright blue vitreous frit, with similar glaze.

The distinction between the body and the glaze is less marked in this specimen than in most of the others; the surface is, however, more vitreous than the interior. There is no dorsal pillar to this specimen, and the body is covered with horizontal bands of impressed hieroglyphic inscriptions.

C. 10. FIGURE of Ptah-Sekeri-Hesar (fig. 2), coated with a bright turquoise-blue glaze.

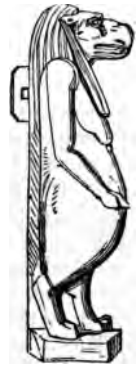
Fig. 2.

The fracture of this specimen shows that the body or paste is a somewhat vitreous frit. A loop at the nape of the neck has served for the attachment of this figure to the ornaments of a mummy. The head is surmounted by a scarabæus.

C. 11. C. 12. TWO small FIGURES of Ta-hur (Thoueris), fig. 3; the body slightly different in the two figures, and the cupriferous glaze presenting two shades of turquoise blue.

This deity is figured in form of a hippopotamus standing erect, and having behind the tail of a crocodile.

Fig. 3.



C. 13. FIGURE of Ra (the Sun), a hawk-headed deity bearing a representation of the solar disc.

The body in this specimen is tolerably distinct from the glaze with which it is covered. The figure is perforated for suspension.

C. 14. FIGURE of Pasht (Bubastis), surmounted by the solar disc.

The glaze is of a light greenish colour, and the surface presents vesicles which seem to point to a fair degree of firing.

C. 15. FIGURE of Tat, in shape of a Nilometer, the emblem of Stability; coated with a pale greenish glaze.

C. 16. FIGURE of a Fish; coated with turquoise-blue glaze, blebby in parts.

The dorsal fin is coated with a dark-coloured, almost black, enamel. The figure is perforated through the mouth for suspension as an amulet.

C. 17. The SACRED EYE, formed of a frit coated with a blue cupriferous glaze; the centre of the eye represented by a blue-black enamel.

The sacred eye is found with Egyptian mummies, usually near the incision which was made for evisceration in the process of embalming.

C. 18. STRING of BEADS, formed of a brown paste coated with a bright blue cupriferous enamel.

These beads are simply flat circular discs perforated for stringing. The character of the paste is seen in the broken bead.

C. 19. } TWO CIRCULAR DISCS of
C. 20. } coloured frits.

Each disc is formed by the union of two thin slabs, the lower being whitish and the upper grey, and inlaid with a white star of eight rays; the central boss yellow.

C. 21. PECTORAL PLATE from a mummy, carved in a steatitic substance, coated with cupriferous glaze, and inlaid with enamels.

This plate is in the form of an Egyptian doorway with recurved cornice, and has carved upon it, in low relief, a subject representing the adoration of the jackal of Anubis. The carved steatite was dipped into the cupriferous glaze, and then exposed to the heat necessary for vitrifying the glaze. Portions of a frit covered with a deep blue glaze, together with pieces of yellow aragonite, were then inlaid in cavities excavated in the steatite; thus filling up the general design. As these cavities are lined by the green glaze, it is evident that they were carved previously to the glazing. The pectoral plate was suspended from the neck of the mummy by a cord passing through apertures pierced in the cornice. The plates were known as *uta* or *uja*.

C. 22. TABLET supporting several SCARABÆI, either formed of frit bodies or carved in steatitic minerals, and coated with coloured glazes, chiefly blue and green.

The elliptical base of each specimen is impressed, or carved in intaglio, with hieroglyphics, and is bored through its longer diameter either for stringing or for mounting as a signet ring. The scarabæus, or sacred beetle of the Egyptians, was called *Kheper*, or "Creator."

C. 23. FEMALE FIGURE, with winged arms, carved in low relief in wood, inlaid with coloured enamels, and gilt.

Some of these enamels present a turquoise-blue colour, similar to that of the cupriferous glazes on many of the foregoing specimens, whilst others possess a rich blue tint resembling a cobalt blue; it has, however, been proved by examination in the laboratory of this institution that this deep blue colour is produced by copper and not by cobalt. Some fragments of the blue mosaic are tipped with a red enamel; all the pieces have been carefully ground to fit into the depressions carved in the wood. Traces of gilding which are still to be detected on the figure show that the elevated wooden partitions between the several pieces of enamel were originally gilt; and those portions of the figure which are not covered by mosaic work appear to have been enriched by painting and gilding.

Assyrian and Babylonian Glazes.

The glazed ware of Assyria and Babylonia was inferior in every respect to that of Egypt. Many of the specimens which have come down to us show the application of a coloured glaze or enamel to the surface of bricks for the purpose of ornamental architecture,—an application which was probably derived by the Assyrians from the Egyptians.* Investigations at this institution have shown, as regards the specimens of Babylonian bricks noticed beneath, that with a soda-glass, or silicate of soda, an opaque white colour was obtained by the use of oxide of tin, while a yellow was produced by means of antimony and lead (antimoniate of lead, or "Naples yellow"). The blue colour derived from copper was previously well known, but the occurrence of lead in the blue enamel, oxide of lead

* Birch's "History of Ancient Pottery," vol. i p. 126.

probably having been employed as a flux, had not been previously ascertained. From the manner in which the Babylonian bricks are coated, the glaze having run over and down the sides, it would appear as if the glazing composition had been applied while the face of the brick to be glazed was horizontal, and that this position of the surface was maintained when the brick was fired, in order to vitrify the composition. The Assyrian enamelled bricks in this collection appear to show that similar glazes or enamels were probably employed by the Assyrians at a still earlier date. The bodies of all the Assyrian and Babylonian bricks mentioned below contain calcareous matter.

C. 24. FRAGMENT of ENAMELLED BRICK, with enamel much decomposed, from Nimroud (Nineveh). This brick may date from B.C. 800 to B.C. 900.

Collected and presented by the Rt. Hon. H. A. Layard, D.C.L.

From analyses of Babylonian enamelled bricks, it is probable that the opaque white colour in this specimen is stanniferous, while the yellow resembles that on No. C. 27, and is therefore probably formed of lead and antimony. The blue-green colour is due to copper, and the brown probably to iron. The brick itself is of baked clay, with impressions showing that it had been worked up with small vegetable stems, such as straw and grass. Many fine specimens of the like kind are to be seen in the British Museum.

C. 25. FRAGMENT of ENAMELLED BRICK, from Khorsabad, Assyria. Date probably about B.C. 700.

Collected and presented by the Rt. Hon. H. A. Layard, D.C.L.

In this specimen, as in the last, the white colour is probably stanniferous; the yellow formed from antimony and lead, and the green from copper. The body of the brick is of the same kind as in the last specimen; a pebble is seen in the middle of the brick.

C. 26. FRAGMENT of ENAMELLED BRICK (blue), from Babylon. Date possibly about B.C. 600.

Collected and presented by W. Kennett Loftus, Esq.

The blue colour of this glaze or enamel is due to a silicate of protoxide of copper and soda. The glass also contains some lead, probably used as a flux. The thick glassy coating extends over the corner of the brick, thus showing that it was applied in a liquid state to a surface somewhat horizontal, and that part of the liquid ran over the sides. A red colour on one side of the brick where the substance of the glaze had run over is due to the reduction of the silicate of protoxide of copper to the state of silicate of suboxide of copper.

C. 27. FRAGMENT of ENAMELLED BRICK (yellow), from Babylon. Date possibly about B.C. 600.

Collected and presented by W. Kennett Loftus, Esq.

The base of this enamel or glaze, like that of the last specimen, is a silicate of soda, and the yellow colour is produced by oxide of antimony and lead ("Naples yellow"). It is evident that the glaze was laid on when the brick was placed horizontally with the face upwards.

C. 28. FRAGMENT of ENAMELLED BRICK (white), from Babylon; the opaque white colour due to peroxide of tin. Date possibly about B.C. 600.

Collected and presented by W. Kennett Loftus, Esq.

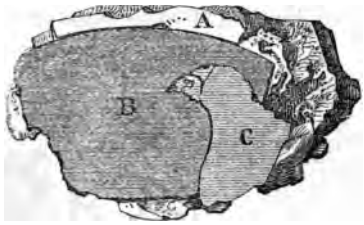
Indian Enamels or Glazes.

C. 29. ENAMELLED FRITS inlaid in base of chunam, so as to form a pattern (fig. 4); from the tombs of the Kootub (Shahee dynasty), Golconda. Date about the 15th century.

Presented by Major Oliphant.

The Egyptian method of enamelling frits composed of silicious sand cemented by some alkaline silicate seems to have been introduced into India by the Mohammedans. In this specimen the frits are enamelled with differently coloured glasses, and the enamelled frits then cut so as to form a design in mosaic when embedded in a wall of chunam or plaster. A portion of a bird (C) is represented in yellow on a turquoise-blue ground (B) with a margin of white (A). The blue colour, probably formed by a silicate of copper and soda, as in the Babylonian brick, closely resembles the turquoise blue of the Sèvres porcelain. These enamelled frits have been used in India from the 13th century, and it is said that they are still made in Scinde.

Fig. 4.



Greek Glazes.

It has been supposed that the black glaze employed in the Greek vases, especially those found in the Campania, is due in great part to volcanic ashes spread by the brush over the required portions, the vases being then exposed to the heat necessary for their fusion. The white and other colours used upon these vases are not enamels, but coloured clays or *engobes* painted on the vases after the design had been sketched. There are some excellent specimens in the British Museum, showing, in those places where the engobes have peeled off, a freedom of hand which much surpasses that exhibited by the finished work, as might, indeed, be expected from the greater difficulty of working with coloured clays of the proper consistency. According to M Salvétat, who analyzed the black glaze of some Greek pottery (Campanian), it had the following composition :—

Silica	46·3
Alumina	11·9
Lime	5·7
Magnesia	2·3
Soda	17·1
Oxide of iron	16·7
	100·0

The quantity of soda in this compound, which otherwise does not very materially differ in constitution from some volcanic ashes, might lead to the supposition that it had been added as a flux. The whole, indeed, may have been artificial, but whether natural or artificial, its use in painting on these vases illustrates the application of a glaze to Greek pottery for ornamental purposes.

The following specimens are placed in the glass cases standing on the bridge over the staircase leading from the hall.

C. 30. EARLY GREEK VASE (fig. 5); height, 8½ inches; greatest diameter, 11½ inches. Date about 700 B.C. Body reddish; figures first sketched in red, then coloured by black glaze and fired; engobes of white and red added in parts, and portions of the figures picked out by scratching through the glaze with a point. Found at Vulci, Etruria.

Fig. 5.

Fig. 6.

C. 31. GREEK HYDRIA or Water Vase (fig. 6); height, 22 ins., diameter of shoulder, 13 ins. Date about 500 B.C. to 400 B.C. Body red; figures and pattern in black glaze, which covers also a large part of the vase beneath; white and red engobes on parts; details of figures picked out through the glaze with a point. Found at Vulci, Etruria.

C. 32. GREEK AMPHORA (fig. 7); height, 16½ ins.; greatest diameter, 10 ins. Date about 500 B.C. to 400 B.C. Body red; figures and pattern drawn in black glaze; white and red engobes in parts; minor details picked out by scratching through the glaze with a point. Found at Vulci, Etruria.

Fig. 7.

C. 33. GREEK AMPHORA (fig. 8); height, 10½ ins.; greatest diameter, 6½ ins. Date between 500 B.C. and 400 B.C. Body reddish; figures and other parts of the design drawn with black glaze; white engobe in parts; detail of figures worked out by scratching through the glaze with a point. Found at Vulci, Etruria.

The use of compasses is shown by the circles round the pupils of the large representations of eyes on the side of the vase. See also the double circles of the chariot wheels on No. C. 31.

Fig. 8.

C. 34. GREEK AMPHORA (fig. 9); height, 12¼ ins.; greatest diameter, 8 ins. Date about 300 B.C. Body reddish; figures left in red by painting the ground with black glaze; white engobe in parts. Found at Ruvo, Naples.

Fig. 9.

C. 35. GREEK AMPHORA (fig. 10); height, 10½ ins.; greatest diameter, 9 ins. Date about 300 B.C. Body red; figures left in red by black glaze on ground, the glaze very lustrous. Found at Nola, Naples.

Fig. 10.

C. 36. GREEK OXYBAPHON (fig. 11); height, 12½ ins.; diameter of rim, 13 ins. Date about 400 B.C. Body red; figures and pattern left in red by painting with black glaze; details of figures sketched in black glaze. Found at Ruvo, Naples.

Fig. 11.

C. 37. GREEK ŒNOCHOË (fig. 12); height, 13 inches. Date about 200 B.C. Body red, ribbed, and turned; glaze black; painted around neck in engobe over glaze, and partly scratched in with the point through the glaze. Found in the Campania.

Fig. 12.

C. 38. GREEK ŒNOCHOË (fig. 13); height, 10 ins. Date about 200 B.C. Ribbed and turned; body wholly covered outside, except the bottom, with black glaze; inside only partially glazed. Found in the Campania.

Fig. 13.

C. 39. GREEK ŒNOCHOË, with trefoil lip similar to that of last specimen; height, 11 inches. Date about 200 B.C. Body red, with

coarse design picked out in red by painting the remainder of the vase with black glaze. Found in the Campania.

C. 40. GREEK ARYBALLOS, $6\frac{1}{4}$ ins. high. Date about 200 B.C. Body red; glaze black; surface slightly ribbed. Found in the Campania.

C. 41. GREEK LECYTHOS, $9\frac{3}{4}$ ins. high. Body red, with black glaze on the neck and foot; design in colours obscure, and coated with a white incrustation.

From the Bandinel collection.

C. 42. GREEK CYLIX (figs. 14 and 15), diameter, $13\frac{1}{2}$ inches. Date about 400 B.C. Body red; figures left in red by painting the other parts with black glaze; details freely sketched in black glaze. Found at Vulci, Etruria.

Fig. 14.

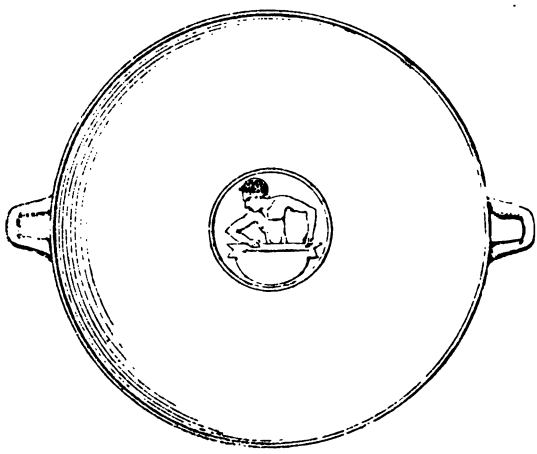


Fig. 15.

C. 43. GREEK CYLIX (figs. 16 and 17); diameter, 11 ins. Date about 370 B.C. Body red; figures left in red by painting the other parts in black glaze; details of figures sketched in black glaze. Found at Vulci, Etruria.

Fig. 16.

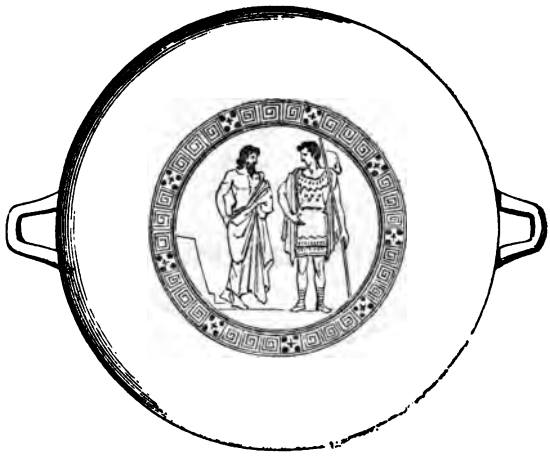
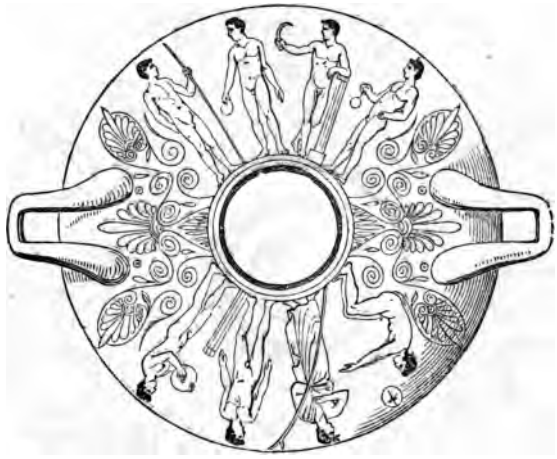


Fig. 17.



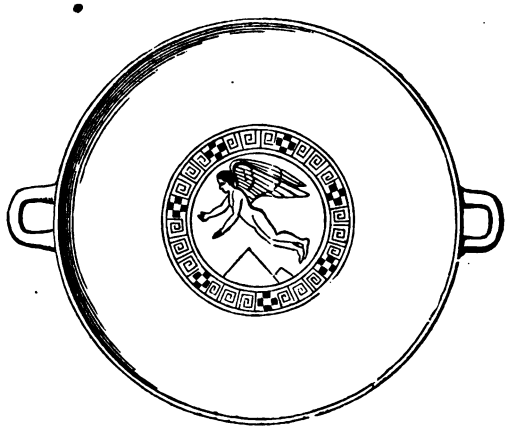
C. 44. GREEK CYLIX (figs. 18 and 19); diameter, 16 ins. Date about 270 B.C. Body red; figures left in red; white engobe in parts; pattern partly scratched in with a point. Found at Ruvo, Naples.

Fig. 18.

Fig. 19

C. 45. GREEK CYLIX (fig. 20); diameter, 8 ins. Body reddish; figures and pattern left in red by painting with black glaze. Found in the Campania.

Fig. 20.



C. 46. GREEK CYLIX (figs. 21 and 22); diameter, 8 ins. Body red; glaze black and brilliant; beautifully turned with elegant impressed pattern inside (fig. 21). Found at Nola, in the Campania.

Fig. 21.

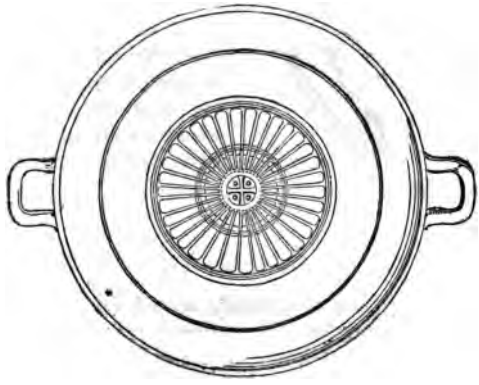
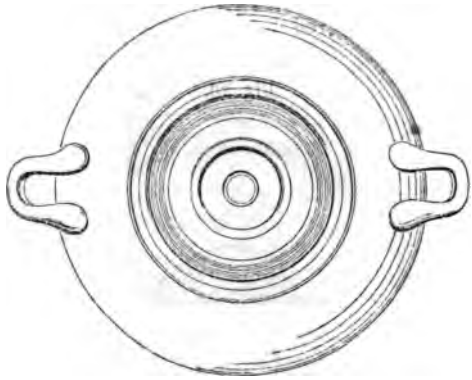


Fig. 22.



C. 47. GREEK SCYPHOS (Basilicate ware); height, $5\frac{1}{8}$ ins.; diameter, $5\frac{3}{8}$ ins. Date about 200 B.C. Body reddish; figures in red left by black glaze.

C. 48. CRATER, 9 ins. high, executed in style of the Greek vases, though coarse. Body reddish; figures left red by black glaze; white engobe in higher parts.

C. 49. ETRUSCAN CANTHAROS (fig. 23); diameter, 4 ins. Date between 500 B.C. and 400 B.C. Body black, with smooth black surface or glaze.

Fig. 23.

C. 50. ETRUSCAN SCYPHOS (fig. 24); height, $3\frac{1}{8}$ ins.; diameter, $3\frac{3}{4}$ ins. Body black, partly ribbed outside by scratching with a tool; smooth black external surface.

Fig. 24.

C. 51. ETRUSCAN ŒNOCHOË; height, 8 ins. Date between 500 B.C. and 400 B.C. Body black, with smooth external surface resembling glaze; vessel turned on the lathe.

Lead Glazes.

Lead has been found, as previously stated (p. 29), in the enamel or glaze of the Babylonian bricks. Brongniart refers to a Roman lamp in the *Bibliothèque Imperiale* at Paris of about the second or third century of the Christian era, with a green cupreous glaze containing lead; as also a small statuette of Venus Anadyomene, supposed to be less ancient than

the lamp, in like manner covered with a green glaze containing lead. The Arabs employed a plumbiferous glaze in the ninth century, for some fragments of Arab pottery of that date, in the Ceramic Museum at Sèvres, have a lead glaze. Two broken vases now preserved at Sèvres, which were taken from a tomb of the date of 1120 in the celebrated Abbaye de Jumièges, have plumbiferous glazes, the one yellowish and the other a brilliant green. How far these vases may have been manufactured in France is uncertain; but if the statement of Passeri be well founded, that in 1100 a lead glaze was produced on the pottery then manufactured at Pesaro by covering the body or paste with oxide of lead, plumbiferous glazes must have been employed in Europe in the early part of the 12th century. Lead glaze was in use in Alsace in the 13th century. Stazlstatt, who died in 1283, is commonly reputed to have been the first person in Alsace who glazed fictile ware with lead.

The Moors introduced their lead glaze into Spain in the 13th century, and about that time its use seems to have spread in different countries. The tiles used in the French castles and abbeys of the 13th century (Abbaye de Voulton, near Provins, Fontainebleau, Château de Gisors, St. Etienne d'Agen) were covered with a lead glaze, as also were the various Norman tiles which have been used in the churches and castles of England. From its easy fusibility this glaze seems to have been very commonly employed in the 14th, 15th, and 16th centuries. It still continues to be much used for glazing common earthenware, although it is desirable to avoid as much as possible such glazing on vessels used for domestic purposes. The following may be taken as examples of the composition of the plumbiferous glazes used for ordinary English earthenware :*—

	Cream-colour Glaze.	Printed-ware Glaze.
Carbonate of lead	66	45
Cornish china-stone	22	28
Flint	12	13
Flint glass	—	14
	100	100

The annexed are examples of glazes containing lead used for some of the soft English porcelains :—

I.

	Parts.
Cornish china-stone	100
Calcined flint	60
Carbonate of lime	25
Cornish kaolin	10
Soda	10
Borax	60
Carbonate of lead	30

These substances are fritted together with 20 per cent. of carbonate of lead and 10 per cent. of flint.

* "Chemical Technology," by Dr. F. Knapp, edited by Dr. E. Ronalds and Dr. T. Richardson, vol. ii. p. 477.

II.

	Parts.
Cornish china-stone	34
Chalk	17
Flint	15
Borax	34
	100

These materials are fritted together and the glaze formed of 69 per cent. of the frit, 10 per cent. of Cornish china-stone, and 21 per cent. of carbonate of lead.

C. 52. ENCAUSTIC TILE, from an ancient kiln, Droitwich, Worcestershire. Date, end of 13th century. Design, a lion in yellow upon red ground, surrounded by a circle, with fleur-de-lis filling up the corners of the square tile. Lead glaze.

C. 53. ENCAUSTIC TILE, from Droitwich. Design, the Royal Arms of England. Lead glaze.

C. 54. ENCAUSTIC TILE, from Droitwich. Design, letters A, B, C, &c., forming a legend round a six-petalled flower. Lead glaze.

C. 55. ENCAUSTIC TILE, from Droitwich. Design, two birds, one on each side of an ornament, passing diagonally across the tile. Lead glaze.

C. 56. ENCAUSTIC TILE. Date about A.D. 1300. Design, a double-headed eagle surrounded by a circle, yellow upon brown ground. Lead glaze.

C. 57. ENCAUSTIC TILE. Date 15th century. Design, a mermaid surrounded by a circle, with fleur-de-lis, in yellow on red ground. Lead glaze.

C. 58. ENCAUSTIC TILE, from Malvern. Date, 15th century, Design, crown surmounting the letter M, in yellow upon a red ground. Lead glaze.

C. 59. ENCAUSTIC TILE, fragment, from Malvern. Design, Gothic ornament with date of 36th Henry VI. (1458); yellow upon red ground. Lead glaze.

C. 60. ENCAUSTIC TILE, from East Hampstead Park, Berkshire. Date, 15th century. Design inlaid in orange upon a red ground, forming part of a general design. Lead glaze.

Presented by the Marquess of Downshire.

C. 61. ENCAUSTIC TILE, from Reading Abbey. Design, a seven-petalled flower; red and ash-coloured clays, coated with greenish lead glaze, much worn.

C. 62. ENCAUSTIC TILE, triangular; from Reading Abbey. Design in yellow, red, and green, forming part of a general pattern. Lead glaze.

C. 63. ENCAUSTIC TILE, triangular; from Reading Abbey. Design, fleur-de-lis and six-petalled flowers; the glaze for the most part worn off.

C. 64. EMBOSSED TILE, triangular; from Reading Abbey. Design, fleur-de-lis; red paste coated with greenish lead glaze.

C. 65. EMBOSSED TILE, with the word "Thomas" reversed; found at Castle Acre, Norfolk; supposed to have been made at Bawsey, Lynn, in the 14th century. Lead glaze.

66. EMBOSSED TILE, one of four forming a design; from Tavistock, Devon. Date about 16th century. Lead glaze.

C. 67. to C. 69. EMBOSSED TILES, with lead glaze; discovered in the ruins of the Cistercian Nunnery at North Berwick, founded by Lord Hailes before 1158.

Presented by the late Prof. George Wilson, F.R.S.

C. 70. C. 71. ARAB TILES, two fragments, from Mansourah, near Tlemcen, Algeria; built by the Emperor of Morocco, A.D. 1402. Body coarse, red; coated with a green lead glaze containing copper.

Presented by the Rev. C. Best Norcliffe.

C. 72. CHINESE TILE, from the Porcelain Tower, Nanking. Date 1411. Body buff-coloured unglazed.

C. 73. CHINESE TILE, from the Porcelain Tower, Nanking. Body buff-coloured, partly coated with a green lead glaze.

Nos. 72 and 73 presented by His Grace the Duke of Northumberland.

C. 74. to C. 80. ARCHITECTURAL ORNAMENTS, in coloured glazed ware, used in the Imperial Palaces and Temples in Peking.

Presented by Dr. Lockhart.

These ornamental tiles are coated with a lead glaze coloured blue, green, and yellow. It has been found by examination in the laboratory of this institution that the blue glaze is coloured by the presence of cobalt. There is no antimony in the yellow glaze.

C. 81. ARCHITECTURAL ORNAMENT, in form of grotesque crowned head; from China.

The chief portion of this figure is formed of a buff-coloured paste, but where a deep red colour is required, as in the crown and in the conventional eyebrows, it is obtained by the use of a red clay applied to the necessary parts. The whole is coated with a transparent yellowish glaze, modified by the colour of the paste beneath, and thus presenting a deep red tint where it covers the red clay. The colours of the eyes and of the bosses on the crown are obtained by the use of green glazes.

Tin Glazes or Enamels.

When certain infusible substances, in a finely-divided state, are introduced into the substance of a glaze, the particles remain mechanically suspended in the vitrified product, which thus acquires more or less opacity. Binoxide of tin employed in this manner produces an opaque white enamel, which has been largely applied to the glazing of certain kinds of pottery, since it forms a surface well adapted to receive painting. It is generally supposed that the use of tin for this purpose originated with the Persians and Arabians, but it has been shown that stanniferous glazes were used in Assyria and Babylon (p. 29). We are not aware that such glazes have yet been found among the productions of the ancient Chinese. Brongniart infers that tin glazes or enamels were known to the Arabs of Northern Africa in the ninth century. From the evidence of the bricks with stanniferous glazes from Babylon and Nineveh, the use of such glazes may readily have been derived from the countries east of the Mediterranean. The tiles employed at the tomb of Mahomet at Medina, built in 707, have, however, neither tin nor lead in their glaze.

It seems clear that stanniferous glazes were introduced into Europe by the Arabs or Moors during their power in Spain. There still remain some beautiful works in enamel tiles in that country, especially at the Moorish palace of the Alhambra, where many of the tiles are coated with a

stanniferous glaze. The dates of the earlier of these tiles at the Alhambra would range from 1273 to 1302. Tiles of a like general kind are still manufactured at Valencia.

C. 82. FRAGMENT of TILE from the Alhambra; of early date. Paste or body reddish, upon the face of which a coating of white opaque stanniferous enamel was spread, and upon this the design was subsequently painted in blue and brown enamels. The brown enamel when viewed at a certain angle is seen to be iridescent.

C. 83. FRAGMENT of TILE from the Alhambra; of early date. Paste reddish; design only partly executed in white enamel, the remainder being formed by green and black enamels and by uncovered portions of the paste or body.

C. 84. LARGE FRAGMENT of TILE from the Alhambra; date probably later than that of the preceding pieces. Paste reddish; design first impressed on the surface of the tile, and including in the centre a shield with a bend bearing an Arabic inscription; a coating of white stanniferous enamel was then applied, upon parts of which blue and brown enamels were painted.

C. 85. SMALL TILE from the Alhambra; date probably not far removed from that of preceding piece. Paste brown; design impressed, and the surface then covered with opaque white stanniferous enamel, upon which blue, brown, and green enamels were subsequently painted.

C. 86. FRAGMENT of TILE or BRICK from the Alhambra; date apparently much removed from that of the early tiles of the Alhambra. This piece apparently formed the corner of some work, as two surfaces are enamelled. Paste, light brown; the two surfaces first covered by opaque white stanniferous enamel, upon which the design was traced in blue, leaving portions of the white, on some of which yellow and orange-coloured enamels were subsequently used.

C. 87. FRAGMENT of Hispano-Moorish TILE from the Alcazar, Seville. Paste, brown; surface first covered with opaque white stanniferous enamel, upon which the design was sketched in brown, some parts being subsequently covered with blue, green, orange, and yellow enamels, while others remain white.

C. 88. SMALL TILE from the Alcazar, Seville; showing that all the tiles employed there were not first covered with the white opaque stanniferous glaze, since the surface of this specimen, which is formed of a light brown paste, was covered directly by a blue enamel, like the enamelled Babylonian brick No. C. 26.

C. 89. FRAGMENT of a TILE found in the ruins of a mosque, near Cairo. Paste, pale brown, painted with part of a design in blue and bluish green under the glaze.

Presented by H. Bauerman, Esq., F.G.S.

Luca della Robbia and Majolica Ware.—Though Moorish tiles were probably introduced into Italy at the conquest of Majorca by the Pisans in 1115, and such tiles were sufficiently esteemed to be employed for ornamental purposes in the churches of Pisa and other places, it is by no means clear when and how a knowledge of tin glazes passed

into Italy. It has been generally considered that they were first used by Luca della Robbia, the Florentine sculptor so celebrated for his terra-cotta figures and bas-reliefs covered with stanniferous glazes. Della Robbia was born about the year 1400, and was eminent as a sculptor in bronze and marble before he modelled in clay for terra-cottas. He died in 1481. During his lifetime and for long after his death similar work was executed by his assistants Ottaviano and Agostino, his nephew Andrea, and his great nephews Giovanni, Luca, and Girolamo. The colours which these masters employed were yellow, opaque blue, green, and violet.

Although Luca della Robbia has usually been regarded as the first to employ stanniferous glazes in Italy, it is not improbable that he may have derived his knowledge of such glazes from the early samples of Italian Majolica ware, which are coated with a similar enamel, and are apparently of an age contemporaneous with that of Della Robbia's earliest efforts in this direction.* The early examples of Majolica or "Raffaelle" ware resemble the Moorish pottery from which it took its origin. The term Majolica is, indeed, derived from Majorca,—an island which, according to Fabio Ferrari, was called Majolica by the ancient Tuscan writers, and whence this kind of pottery was introduced into Italy. The popular designation of Raffaelle ware has arisen from its decoration having been often copied from designs after Raffaelle.†

The process of manufacturing Majolica ware has been described by Passeri, who wrote in the middle of the last century.‡ After the body or paste had been fired, it was coated with a white clay or earth and a composition of oxide of lead and oxide of tin, the proportion of tin being increased as the enamel was required to be whiter and harder. This manufacture was in the most flourishing state from about 1540 to 1560, and declined greatly in importance after 1574. Duke Guidobaldo II. of Urbino greatly encouraged its manufacture, giving to his works designs by Raffaelle and his pupils. The towns of Urbino, Gubbio, Pesaro, Castel Durante, and Faenza were the most celebrated for their production of this ware, but the manufacture was extended to other places in Italy. Some of the early ware, known as *Mezza Majolica*, is remarkable for the iridescent and metallic lustre of certain colours with which it is decorated. Of these the famous ruby lustre has been considered peculiar to one artist, Maestro Giorgio, of Gubbio; and although it appears that he was not the inventor of this glaze, he nevertheless so appropriated it that many Majolica painters are believed to have sent their productions

* "Catalogue of the Soulages Collection," by J. C. Robinson, F.S.A., 1857, p. 52.

† It is probable that Raffaelle himself neither painted on Majolica ware nor furnished designs for its decoration. A letter has, however, been attributed to Raffaelle, in which the Duchess of Urbino is informed that the designs are ready which she had desired for her sideboard. It is certain that the Raffaelle who wrote this letter could not have been the great master, inasmuch as the latter had been dead long before the period to which the letter may be referred (Marryat's "History of Pottery and Porcelain," 3rd ed., 1868, p. 35). Some of the designs of Majolica ware are considered to have been taken from the engravings of Raffaelle's works by Marco Antonio.

‡ "Istoria delle Pitture in Majolica fatte in Pesaro e nel luoghi circonvicini," a work first printed in Venice in 1752, and reprinted at Bologna in 1775. Another edition, edited by Ignazio Montanari, appeared in 1833. All these are exceedingly scarce. A translation in French, with an appendix by the translator, M. Delange was published in Paris, December 1853.

to M. Giorgio in order that he might enrich them with this celebrated lustre.* According to Brongniart, there is no colour on the Majolica ware due to any preparation of gold.†

C. 90. PLATEAU of Mezza Majolica ware. Diameter, 15½ inches. Centre painted in blue with female portrait in profile, enriched with yellow metallic lustre washed over the costume and head-dress; border a radiating pattern in blue and white with yellow lustre.

The specimens decorated with this yellow lustre, outlined in blue, are referred to Gubbio, Deruta, or Pesaro. Pieces of majolica ware intended as lovers' presents were often painted with portraits and appropriate inscriptions, and are known as "Amatorii Majolica."

C. 91. PLATE in Mezza Majolica ware. Diameter, 10½ inches. Centre with large initial E, outlined in blue, painted with brown iridescent or *madreperla* lustre, and enriched with crimson or ruby lustre. Circa 1510–1520.

This piece was probably decorated at Gubbio, where Maestro Giorgio is believed to have monopolized the use of the ruby lustre.

C. 92. PLATEAU in Majolica ware of the best period. Diameter, 15¼ inches. Painted in colours with design of C. Mucius Scaevola burning his right hand before King Porsenna. Reverse inscribed in blue "G. V. V. D. *Munus F. An-*" *drea Volaterrano. Mutio ib la*" *sua destra erante cocie.*"

This piece, which is a good example of the best style, and is useful as showing the colours employed, was made at Urbino, and bears on the rim the arms of the Duke of Urbino. The initials on the back are those of "Guido Ubaldo Urbino Dux," and the inscription may be rendered, "Presented to Father Andrea of Volterra," the rest being merely descriptive of the scene depicted on the front.

C. 93. PLATEAU in Majolica ware of the best period. Diameter, 10 inches. Painted in colours with group of astrologers, and youth in costume of the period playing an organ, while an attendant blows the bellows. Reverse inscribed in blue, "ASTROLOGIA, 1545."

C. 94. PLATE in Majolica ware. Diameter, 8¾ inches. Design in colours, with three coats of arms on the rim. Reverse, with scale pattern in orange on yellow ground, inscribed in blue, "MDXXXIIII· F·ATHANASIVS·B·M."

Similar specimens have been attributed to Baldesara Manara, of Faenza,‡ to whom the initials B M. probably refer. This piece is useful, not only as illustrating the colours employed, but also as showing by a finger mark that the stanniferous ground and colours upon it were in a thick pasty state before firing. By a careful inspection of the three preceding specimens, it will be observed that the only colours employed are blue, yellow, light brown, and bluish black, with their mixtures.

C. 95. PLATE in Majolica ware. Diameter, 9¼ inches. Design in colours, emblematical of the subjection of science to love. Reverse inscribed, "*Amor crudele con sue uoglie prave fecie Aristotil portar freno e sella*, 1547."

It is notable that the blue colour of part of this inscription is brought out only where the glaze passes over the writing.

C. 96. PLATE in Majolica ware. Diameter, 10½ inches. Design in green camaieu, with yellow introduced in the sky. Subject: in central concavity a cupid; on the rim the Rape of Helen, and Troy in flames. Reverse ornamented with

* "Catalogue of the Soulages Collection," by J. C. Robinson, F.S.A., p. 4.
† The gold purple, or "purple precipitate of Cassius," was not known until 1585.
‡ See Appendix by M. Delange to his translation of Passeri's work, p. 111.

scrolls painted in blue on white enamelled ground.

C. 97. PLATE in coarse Majolica ware. Diameter, 8¾ inches. Painted in brown monochrome on blue ground, with profile portrait in centre surrounded by musical trophies, &c. Circa, 1530.

C. 98. PLATE in Majolica ware of later date. Diameter, 12¾ inches. Design in colours, Eve offering an apple to Adam (fig. 25). Siena manufacture.

C. 99. PLATE in Majolica ware of late date. Diameter, 10 inches. Design in colours, a landscape with large arch in foreground. Mark on reverse, in brown, the monogram A F beneath two palm branches saltire, having between them a Maltese cross surmounted by a coronet. Venetian manufacture.

C. 100. DISH, 12 inches in diameter, with wide border perforated with fleur-de-lis and stars. Body coarse brown, with thick coating of opaque white stanniferous enamel.
Presented by Sir T. W. Holbourne.

Fig. 25.

Palissy Ware.—The celebrated ware made by Palissy was coated with a stanniferous glaze, the production of which cost him much labour, and upon this glaze coloured enamels were employed. Bernard Palissy was born of poor parents at La Chapelle Biron, in Perigord, about the year 1510. He was a most enterprising man, and while working at glass-painting and land-surveying for a subsistence, he studied geology, chemistry, and other branches of science. Having seen a beautiful cup of enamelled pottery, he laboured to discover the secret of its enamel. For sixteen years he vainly attempted to imitate it, spending in these attempts all his money, and involving himself in much misery. Success, however, finally crowned his efforts. He died in confinement in the Bastile about the year 1589.

Palissy's "rustic ware," which has become extremely famous, is remarkable for its decorations in relief, truthfully modelled and coloured from

natural objects in the neighbourhood of Paris, such as reptiles, fishes, leaves, and even the fossil shells of the district. In addition, however, to this characteristic relief ware, he produced a great variety of different kinds of pottery.

C. 101. Oval Dish, in the style of Palissy's rustic ware. In the centre a fish modelled in high relief and coloured from nature, surrounded by fern fronds and aquatic plants, with a lizard, frog, snake, insects, and shells (*planorbis, paludina.* &c.), all coloured in enamels from nature.

C. 102. Square Tile from the Château d'Écouen. Enamelled surface, painted in blue, yellow, and orange, with bust of winged female forming part of a general design.

Presented by A. W. Franks, Esq., M.A., F.S.A.

The château of the Constable de Montmorency at Écouen, near Paris, was decorated with tiles, many of which were painted by Bernard Palissy about the middle of the sixteenth century.

Delft Ware.—The famous Delft ware was coated with a stanniferous glaze or enamel, upon which the designs were executed, chiefly in blue. Only a single specimen of this ware is here exhibited, in order to show the character of the glaze, but a collection of interesting examples will be found in the lower part of Wall Cases XXXV. to XLIV. From Holland the manufacture of Delft ware was introduced into this country, and specimens made at Lambeth, Liverpool, and other English localities are described under their respective places of manufacture. The Liverpool punch-bowl, No. S. 10 (p. 196), is interesting as bearing a motto alluding to the use of tin in the enamel.

C. 103. Delft Dish, probably an early specimen. Enamel of the characteristic greenish tint, painted in oriental style, with conventional foliage in variously coloured enamels upon the fundamental stanniferous glaze. Marked on the back in red in imitation of Chinese or Japanese marks.

It is remarkable that the bodies or pastes employed by Luca della Robbia, and by the manufacturers of the Majolica and Delft ware, are so nearly alike in composition, as to suggest a suspicion that a knowledge of their constitution may have been derived one from another. The Palissy ware is, however, differently composed, containing less calcareous matter than the others, and consisting almost wholly of silica and alumina. The following analyses of these several wares, made at Sèvres, are given by M. Brongniart :—

	Luca della Robbia.	Majolica.	Delft.	Palissy.
Silica	49·65	48·00	49·07	67·50
Alumina	15·50	17·50	16·19	28·51
Lime	22·40	20·12	18·01	1·52
Magnesia	0·17	1·17	0·82	—
Oxide of iron	3·70	3·75	2·82	2·05
Carbonic acid and loss	8·58	9·46	13·09	0·42*

* This quantity represents loss, and not carbonic acid.

Felspathic Glazes.

A knowledge of felspathic glazes, or those in which felspar forms a more or less prominent ingredient, seems to have been introduced into Europe with that of the composition of the Chinese porcelain pastes or bodies; so that as European imitations of the latter extended, the use of felspathic glazes also spread. These glazes usually require a far greater heat for their fusion than is required for those which are employed on ordinary pottery.

The Chinese glazes are variously composed, but consist chiefly of petrosilex (a compact felspathic rock), the fusibility of which is increased by the addition of lime, fern-ashes, and powdered gypsum (*che-kao*). These materials, finely powdered and carefully mixed, are suspended in water, and the mixture applied directly to the ware in its raw or unbaked state, the method being, therefore, essentially different from that followed in European manufactories, where the porcelain is never glazed until it has been brought to the state of "biscuit" by firing.*

Although, doubtless, many modifications may have been made in the glazes employed at Meissen (Dresden) since the first European porcelain works were carried on at that place at the commencement of the eighteenth century, yet the glazes still used there are interesting, as probably pointing in some measure to the composition of those early employed. The following has been given as the Meissen glaze of 1836, and it will be noticed that it is destitute of felspar:—

Calcined quartz	37·0
Kaolin of Seilitz, calcined	37·0
Compact limestone of Neuntmansdorf, near Pirna	17·5
Pieces of porcelain	8·5
	100·

The glaze of the Berlin porcelain had, in 1836, the following composition:—

Kaolin of Morl	31
Quartz sand	43
Gypsum	14
Pieces of porcelain	12
	100

Prior to the year 1780, the glaze employed at Sèvres was compounded as follows:—

Biscuit	48
Sand from Fontainebleau	40
Chalk from Bougival	12
	100

Since that date, however, the use of an artificially-prepared glaze has been abandoned, and recourse had almost exclusively to the pegmatite

* For the composition of Chinese glazes, see M. Stanislas Julien's translation from the Chinese, entitled, "Histoire et Fabrication de la Porcelaine Chinoise," Paris, 1856, p. 180.

of St. Yrieix, near Limoges, a rock composed of felspar and quartz. According to the analyses of M. Salvétat, this rock has the following chemical composition :—

Silica	74·3
Alumina	18·3
Potash	6·5
Lime	0·4
Magnesia	0·2
Loss	0·3
	100·

For the glazes of English porcelain Cornish china-stone usually forms an important ingredient, a frit being not unfrequently made with this rock, associated with borax, flint, lime, or other substances. Formerly lead was more employed in such glazes than it is at present.

The following formula is given by Drs. Ronalds and Richardson,* as producing a porcelain glaze considered excellent in 1848 :—

Parts.		Per cent.
Cornish china-stone 25	Fritted in gloss-oven, and then the following mixture used:—	Frit 26
Soda 6		China-stone 26
Borax 3		White lead 3
Nitre 1		Flint 7
		Carbonate of lime 7
		Oxide of tin 3

C. 104. Thick Porcelain Tile, having one face covered with felspathic glaze; from the Porcelain Tower, Nanking. Date 1411. Obtained, in 1842, from the high priest at the tower.

Presented by His Grace the Duke of Northumberland.

C. 105. Vase, in Chinese porcelain, coated with a fine felspathic glaze, and ornamented with pomegranates painted in red and blue under the glaze. Marked in blue with the stamp of the Emperor Ch'êng Hwa, Ming Dynasty, A.D. 1465 to 1488.

From the Marryat Collection.

C. 106. Large Vase, or jar, in Chinese porcelain, with dragons modelled in relief upon the neck. Glaze felspathic, with Chinese scenes elaborately enamelled in colours upon the glaze.

C. 107. Large Vase, or jar, in Chinese porcelain, covered with a red felspathic glaze, containing copper in the form of a silicate of the suboxide (cuprous silicate), probably reduced from the blue double silicate of protoxide of copper and of an alkali (alkaline cupric silicate), as is seen to be the case with the blue enamelled Babylonian brick, No. C. 26.

C. 108. Large Vase, or jar, in Chinese porcelain, covered by a similar glaze to that on the preceding piece, but mottled purple and red, the blue double silicate having in this case been only partially reduced to the state of red silicate of suboxide of copper.

It is believed that the processes by which these effects are produced have not as yet been successfully imitated in Europe.

* See the additions to their translation of Knapp's "Chemical Technology," vol. ii., *p.* 466

C. 109. VASE, 6½ inches high; in Chinese porcelain, with mottled blue and green glaze.

Coll. Marryat.

C. 110. ANCIENT VASE, or jar, of Chinese porcelain, partially coated with a 'crazed' glaze, illustrative of the mode of producing the ware termed *cracklin china.*

The white porcelain paste or body is covered partly with a brown felspathic enamel and partly with a white *cracklin* glaze, the latter having been artificially produced by employing a thick opaque enamel which upon firing split in various directions or *crazed*, while the brown enamel spread over the other portion upon which a design has been raised in relief and not crazed. Part of this raised design exhibits a meander ornament similar to that known as the Greek fret.

Presented by Sir Harry Parkes, K.C.B.

C. 111. FRAGMENT of CRACKLIN CHINA, showing the character of the paste and the thickness of the felspathic glaze.

Presented by Dr. Lockhart.

C. 112. to C. 114. THREE SMALL BOTTLES in Chinese porcelain, similar to those found in many Egyptian tombs, and at Nineveh.

Presented by Dr. Lockhart.

The discovery of such bottles in Egyptian tombs of great antiquity has led to the inference that porcelain must have been manufactured in China as early as the eighteenth century B.C. It has, however, been shown by M. Stanislas Julien that the Chinese characters upon some of these bottles belong to a style of writing which was not invented until B.C. 48–33, while Mr. Medhurst has found that the inscriptions upon two of them are quotations from a Chinese poet of the eighth century of our era. Indeed similar vessels may be purchased in China at the present day.

It is believed that the manufacture of porcelain in China was not undertaken until between B.C. 185 and A.D. 87. (*See supra*, p 9.)

C. 115. CUP in Chinese porcelain, with perforated diamond pattern filled in with translucent glaze.

Presented by Dr. Lockhart.

C. 116. CUP and SAUCER in Chinese porcelain, termed from its thinness and lightness "*egg-shell china.*" Felspathic glaze, with figure-subject in black and flesh-tinted enamels.

C. 117. SAUCER in Japanese "egg-shell porcelain," with felspathic glaze richly enamelled in blue, and gilt.

Presented by C. Tookey, Esq., F.C.S.

C. 118. CUP and SAUCER in thin white French porcelain, with felspathic glaze; from the Imperial Manufactory at Sèvres.

C. 119. CANDLESTICK in English porcelain, painted with flowers in blue, and touched with gold; marked in red "Coalport Improved Feltspar (*sic*) Porcelain; patronized by the Society of Arts; the Gold Medal awarded May 30, 1820; J. Rose and Co."

The Society of Arts in the session 1819–20 offered a premium "to the person "who shall discover to the society the "cheapest, safest, most durable, and most "easily fusible composition fit for the "purpose of glazing earthenware, without "any preparation of lead, arsenic, or other "pernicious ingredients, and superior to "any hitherto in use." In the following session the Isis Gold Medal was awarded to Mr. John Rose, of Coalport, Shropshire, for an improved glaze for porcelain, having the following composition:—

	Parts.
Felspar from Welshpool, Montgomeryshire	27
Borax	18
Sand from Lynn, Norfolk	4
Cornish china-clay	3
Nitre	3
Soda	3

This mixture was fritted, and three parts of calcined borax then added.* (*See also* No. O. 39., Coalport porcelain, p. 183.)

* Transactions of the Society of Arts, vol. xxxviii., 1821, p. 42.

Salt Glaze.

Salt glaze, or one in which common salt by its volatilization amid the biscuit ware produces the glaze, was first employed by Messrs. Palmer and Bagnel, at their potteries at Burslem, in Staffordshire, in the year 1680.*

The glazing is effected towards the end of the firing by throwing common salt (chloride of sodium) into the kiln containing the ware, through apertures made for the purpose. At the high temperature of the kiln the salt is volatilized, and its vapour thus surrounds the various vessels which are being baked. The vapour of sodic chloride, the silica in the paste of the ware, and the watery vapour which is always present, react upon each other, the hydrogen of the water forming, with the chlorine of the salt, hydrochloric acid, which passes off in the state of vapour, while the oxygen of the steam uniting with the sodium produces soda, which forms a silicate on the surface of the ware, so that the biscuit becomes coated with a thin layer of sodic silicate, or soda glass. As salt glaze requires for its production a very high temperature, and is not considered so generally applicable as other glazes, it is employed at present only for special purposes. For vessels required to contain acids and other corrosive liquids, salt glaze is still employed; and it is also largely used for drain and chimney pipes, and for the stone-ware insulators of the wires of electric telegraphs.

C. 120. JUG in early Staffordshire salt-glazed ware, with embossed pecten pattern.

A large collection of similar ware, obtained for the most part from the collection of the late Enoch Wood, will be found among the Staffordshire series (*See.* p. 108.)

C. 121. MUG in *grès cerame*, ornamented in relief with figure of Gambrinus in centre.

C. 122. SMALL BATH in Vauxhall stone-ware, enamelled inside.

Smearing.

Smearing, as it is termed, is produced by the evaporation of certain glazes in closed saggers. Thus in the earthenware kilns, where common glazes are employed upon the ware, if the saggers be closed, and the heat be sufficient, other biscuit ware placed in the saggers may be slightly covered with a coating of glaze, or be *smeared*, by the evaporation from the glazes. Certain compositions may also be placed in the bottom of the closed saggers, and by their evaporation the ware in them may be smeared. Various compositions are employed, and common salt is sometimes added; for example, the following composition may be used:—

Common salt	67
Potash	28
Oxide of lead	5
	100

* See account of the Staffordshire potteries, p. 94, where the reputed accidental discovery of salt glaze is noticed.

Colours.

[See specimens in Table Case 3; east side.]

In the preparation of the materials used for painting on pottery and porcelain the colouring agents are usually mixed with some vitrifiable substance, or flux, which on fusion causes the colours to adhere to the surface, and at the same time serves as a protection by covering them with an impervious glaze. Since organic and volatile colours would suffer more or less alteration upon exposure to the temperature necessary for the fusion of the flux, their use is obviously excluded, and the range of colours available for ceramic decoration is therefore confined to certain metallic oxides and salts. In some cases the colouring agents remain mechanically suspended in the flux, which thus serves merely as a vehicle; while in other cases the oxides form fusible silicates or borates by entering into chemical combination with certain constituents of the flux with which they are mixed, or of the paste to which they may be applied; examples of mechanical suspension of colours are afforded by the greens from oxide of chromium and by the reds and browns from peroxide of iron; while examples of chemical combination are furnished by cobalt and copper colours, the silicates, and not the oxides, of these metals being the true colouring agents.

Obviously the most durable mode of decoration would be that of applying the colour to the ware when in the state of biscuit, since it would then be protected by the coating of glaze subsequently laid over the surface. This mode of application is, however, practicable only when the colours are capable of resisting, unaltered, the temperature to which the ware is exposed during the firing of the glaze. Such is the case, for example, with the cobalt blues and chrome greens. But such colours are exceptional, for in most cases the tint would be seriously altered, if not entirely dispelled, by the high temperature requisite for fusing the porcelain glaze, and such colours can therefore be used only for painting upon the glazed surface; thus some of the yellows from preparations of antimony are rendered almost colourless by a high temperature. Hence the distinction between colours employed *under* the glaze, and those which can be used only *over* the glaze.

Among the metallic oxides which are available in ceramic decoration the following are the most important:—Oxide of *cobalt*, prepared generally from ores containing cobalt and nickel—sulphides, arsenides, and arsenio-sulphides—and extensively used in the preparation of blues, grays, and blacks, these colours being capable of withstanding a high temperature, and therefore of being used under the glaze; oxide of *chromium*, generally obtained by the decomposition either of chromate or bichromate of potash, or of chromate of mercury, and used for producing a very stable green colour which may be worked under the glaze; peroxide of *iron*, or ferric oxide, prepared by the calcination of ferrous sulphate, or green copperas, and used for reds, browns, and violets, the tints varying with the temperature at which the calcination is effected, and capable of modification by being associated with other oxides; oxide of *antimony*, giving various shades of yellow, and generally mixed with oxide of zinc or of iron, but sometimes used in the form of antimoniate of lead or "Naples yellow;" oxides of *copper*, forming silicates which are red with the suboxide

(cuprous salts), and blue with the protoxide (cupric salts), when associated with an alkaline silicate; peroxide of *manganese* occurring abundantly, native as pyrolusite, and used for violets and blacks; sesquioxide of *uranium*, a rare compound, occasionally employed for producing an orange colour; and oxide of *iridium*, an expensive preparation, highly valued for producing a black colour of extraordinary intensity. Oxide of *zinc*, although incapable by itself of imparting colour to any vitreous substance, is nevertheless of great importance by its power of modifying and improving other colours with which it may be associated, such as the cobalt blues. The tint may often also be affected by the character of the flux employed. Of the materials used for fluxing, the chief are felspar, borax, nitre, litharge, alkaline carbonates, and preparations of bismuth. It is necessary that the vitreous substances formed by these fluxes, and coloured by the metallic oxides, should expand and contract by alterations of temperature, in the same degree as the body or glaze to which they are applied, since the colours would otherwise become cracked or "crazed."

D. 1. COBALT BLUE prepared for use under the glaze.

D. 2. SLAB, with ornamental border printed with D. 1; one half left in the state of biscuit and the other half glazed to show the development of colour consequent upon firing the glaze.

D. 3. MINTON'S GLAZE, used in glazing specimens in this series.

D. 4. GOOD PRINTING BLUE for use under the glaze.

D. 5. SLAB, printed with D. 4; one half left in the state of biscuit and the other half glazed, showing the difference in tint between the two portions.

D. 6. SLAB, printed with D. 4, the colour having flowed in the sagger.

D. 7. PREPARATION used for flowing the blue.

D. 8. MATT BLUE, for use under the glaze.

D. 9. SLAB, with border printed with D. 8; one half glazed.

D. 10. CHROME GREEN, for use under the glaze.

D. 11. SLAB, printed with D. 10; one half glazed.

D. 12. BLACK, for use under the glaze.

D. 13. SLAB, with border printed with D. 12; one half glazed.

D. 14. PURPLE, for use under the glaze.

D. 15. SLAB, with border printed with D. 14; one half glazed.

D. 16. PINK, for use under the glaze.

D. 17. ENAMEL BLUE, prepared for printing upon the glaze.

D. 18. GLAZED SLAB, with ornamental border printed with D. 17.

D. 19. CHROME GREEN, prepared for use upon the glaze.

D. 20. GLAZED SLAB, printed with D. 19.

D. 21. CHROMATE OF LEAD, prepared for use upon the glaze.

D. 22. GLAZED SLAB, printed with D. 21.

D. 23. PURPLE OF CASSIUS, a precipitate formed by adding a solution of protochloride and perchloride of tin (stannous and stannic chlorides) to a solution of terchloride of gold (auric chloride), or by digesting metallic tin in a solution of gold terchloride.

Purple of Cassius forms the base of all the pink and purple colours used for painting over the glaze, but the pinks and

purples used under the glaze (D. 14 and D. 16) generally contain the oxides of chromium and tin.

D. 24. PURPLE, prepared for use upon the glaze.

D. 25. GLAZED SLAB, printed with D. 24.

D. 26. ROSE COLOUR, prepared for use upon the glaze.

D. 27. GLAZED SLAB, printed with D. 26.

D. 1 to D 27 prepared and presented by Messrs. Minton and Co., Stoke-upon-Trent.

D. 28 to D. 55. A series of 28 small PORCELAIN SLABS, exhibiting the following COLOURS :—

Prepared and presented by Messrs. Minton and Co.

D. 28. GROS BLEU, a cobalt blue upon China glaze.

D. 29. GROS BLEU of lighter tint.

D. 30. BLUE, from oxide of cobalt modified by oxide of zinc.

D. 31. COBALT BLUE of lighter tint.

D. 32. TURQUOISE BLUE, from oxide of copper.

D. 33. BLUISH GREEN, from oxide of copper.

D. 34 to D. 37. GREEN, of different tints, from oxide of chromium with oxide of cobalt.

D. 38. YELLOW, from oxide of antimony with oxide of zinc.

D. 39. YELLOW, of darker tint, from oxide of antimony with oxide of lead or of iron.

D. 40. ORANGE, from sesquioxide of uranium.

D. 41. ROSE COLOUR, from purple of Cassius.

D. 42 to D. 43. PURPLE, of different tints, from purple of Cassius.

D. 44. RED, from purple of Cassius.

D. 45 to D. 47. RED, of different tints, from chromate of lead.

D. 48. RED, from peroxide of iron (ferric oxide), obtained by calcination of the sulphate (ferrous sulphate).

D. 49. BROWN, from peroxide of iron.

D. 50 to D. 53. BROWN and PURPLE, of different tints, from peroxide of iron modified by oxide of zinc.

D. 54. BLACK, from sesquioxide of iridium.

D. 55. BLACK, from a mixture of several oxides, chiefly those of iron, cobalt, chromium, and manganese.

D. 56 to D. 89.—Series of 34 specimens of colours used in painting on pottery and porcelain, showing each colour in its raw state, accompanied by a specimen-slab exhibiting the same colour after firing.

Prepared and presented by Messrs. Emery and Co., Cobridge, Staffordshire.

D. 56. LAVENDER.

D. 57. MAUVE, No. 7.

D. 58. MAUVE, No. 8.

D. 59. MAUVE, No. 9.

D. 60. UNIQUE.

D. 61. MATT BLUE, No. 17.

D. 62. CELESTE, No. 3.

D. 63. FLORENTINE GREEN.

D. 64. CHROME GREEN, No. 10.

D. 65. CHROME GREEN, No. 14.

D. 66. GORDON GREEN.

D. 67. GORDON GREEN, No. 13.

D. 68. STONE DRAB.

D. 69. KINGSTON DRAB.

D. 70. QUEEN'S DRAB, No. 1.

D. 71. Queen's Drab, No. 18.

D. 72. Buff.

D. 73. Peach Buff.

D. 74. Primrose.

D. 75. Ivory, No. 3.

D. 76. Golden Fawn.

D. 77. Golden Fawn, darker tint.

D. 78. Salmon, No. 13.

D. 79. Peach Blossom.

D. 80. Hard-kiln Pink.

D. 81. Pink, No. 6.

D. 82. Pink, No. 20.

D. 83. Magenta.

D. 84. Coral Red, No. 1.

D. 85. Coral Red, No. 2.

D. 86. Best Red.

D. 87. Ruby.

D. 88. Marone.

D. 89. Marone, large slab.

D. 90 to D. 103. Fourteen Specimen Slabs, exhibiting the following Majolica Enamels and Glazes :—

Prepared and presented by Messrs. Maw and Co., Benthall Works, Broseley, Shropshire.

D. 90. Lilacs, seven tints.

D. 91. Purples, seven tints.

D. 92. Opaque Blues, seven tints.

D. 93. Fawn Lavenders, six tints.

D. 94. Opaque Yellows and Orange, six tints.

D. 95. Warm Opaque Greens, six tints.

D. 96. Intermediate Opaque Greens, six tints.

D. 97. Cold Opaque Greens, six tints.

D. 98. Warm Grays, six tints.

D. 99. Neutral Grays, six tints.

D. 100. Cold Grays, six tints.

D. 101. Transparent Greens, four tints.

D. 102. Transparent Browns, four tints.

D. 103. Transparent Ambers, five tints.

D. 104 to D. 132.—Twenty-nine Cylindrical Vessels coloured in horizontal bands to exhibit different tints of the following colours :—

D. 104. Black, from oxides of iron and cobalt.

D. 105 to 110. Brown, various tints, from peroxide of iron.

D. 111 to 114. Red and Pink, various tints, from purple of cassius.

D. 115. Red, from chromate of lead.

D. 116 to 118. Yellows, various tints, from oxide of antimony.

D. 119 to 123. Green, various tints, from oxide of chromium.

D. 124. Neutral Green, from oxide of nickel.

D. 125. Pale Blue, from oxide of copper.

D. 126. Turquoise Blue, from oxide of copper.

D. 127. Green, from oxide of copper.

D. 128 to 132. Blue, various tints, from oxide of cobalt.

D. 133. Specimen Slab, divided into 20 compartments, showing the principal colours employed at the Imperial Porcelain Manufactory at Sèvres.

D. 134 to D. 148. Fifteen Trial Plates, with samples of various colours employed at Sèvres. These plates are submitted

to the same temperature as the piece about to be painted in order to judge of the quality of the colour employed.

D. 149. SMALL PLAQUE, from Sèvres, coloured green (*grand feu*).

D. 150. SMALL PLAQUE, from Sèvres, painted in blue (*demi-grand feu*) and ornamented in gold.

D. 151. SMALL PLAQUE, from Sèvres, rose coloured (*feu de moufle ordinaire*).

D. 133 *to D.* 151 *presented by the Director of the Imperial Porcelain Manufactory at Sèvres.*

D. 152 to D. 163. TWELVE PORCELAIN TABLETS, each divided into three compartments, exhibiting 36 of the principal colours employed at the Royal Porcelain Manufactory at Berlin.

Presented by the late Professor Magnus.

D. 164. BOTTLE, with preparation used for GILDING on porcelain and pottery.

An amalgam of gold and mercury is mixed with a flux, and the powder worked up with turpentine and oil, so that it may be applied to the ware by means of a camel-hair pencil.

D. 165. SMALL SLAB, with specimen of gilding on blue ground.

The design having been traced with the gold preparation, the piece is placed in a muffle and submitted to firing. The gold left on the surface by the evaporation of the vehicle is at first "dead," but readily assumes its metallic lustre by burnishing with a piece of agate or hæmatite.

D. 166. SMALL SLAB, with specimen of raised gold.

The rich effect of raised gold is economically obtained by first tracing the design with thick yellow enamel, the surface of which is then gilt.

D. 167. SMALL SLAB, with specimen of gilding with an alloy of gold and silver, the effect of the silver being to lighten the colour.

D. 164 *to D.* 167 *presented by Messrs. Minton and Co.*

Lustres.

[See specimens in Wall Cases XL. and XLI.; lower compartment, top shelf.]

Common pottery is often decorated with a brilliant metallic lustre, which in some cases results from an extremely thin film of the metal upon the glazed surface. As the metals thus employed must not be susceptible of alteration by the agents to which pottery is commonly exposed, recourse is usually had to the precious metals, chiefly gold and platinum, but the quantity used is so extremely small that the commonest forms of earthenware may be coated with these lustres. Different processes are followed in the preparation of lustres, but they all consist in reducing the metal from a state of combination and depositing it in such a form that it exhibits its characteristic lustre *without burnishing*. The gold is dissolved in aqua regia, tin is frequently added, and the preparation mixed generally with balsam of sulphur and oil of turpentine. This preparation having been applied to the surface by means of a brush, the piece is carefully fired and the reduced metal deposited in a state of extreme tenuity; indeed the layer is often transparent, and hence the colour of the lustre may be modified by that of the subjacent surface.

It has been supposed that the lustres characteristic of some of the old Spanish ware are due to a very thin layer of some preparation of copper and not to the metal itself. A brilliant lustre similar to that on the Spanish ware is said to have been used at Brislington, near Bristol.

D. 168. PLATE of Hispano-Arabic ware ; coarse body with glazed surface profusely covered with leaves, and bird in centre, in a brilliant coppery lustre.

D. 169. FRAGMENT of a large bowl in similar ware ; coarse body with cream-coloured glaze, ornamented with birds and conventional foliage traced in a brilliant lustre redder than that on the last piece, and partly iridescent.

D. 170. SMALL VASE coated with gold lustre.

Presented by Messrs. Minton & Co.

D. 170. TWO-HANDLED VASE coated with gold lustre, and painted with flowers.

D. 171. GOBLET coated with gold lustre, and ornamented with raised flowers tinted red on a band of orange-coloured ground.

D. 172. JUG, with gold lustre round the neck ; the body painted blue and ornamented in relief with coloured figures including the Hanoverian badge.

Presented by Mrs. Bury Palliser.

D. 173. BASKET coated with lustre of a deep bronze colour, ornamented with frieze of armed figures.

D. 174. CARD BASKET coated with an iridescent bronzy lustre.

D. 175. PLATE completely coated with platinum lustre.

Presented by the late R. Warington, Esq., F.C.S.

D. 176. CUP and SAUCER, with leaves in platinum lustre, gilt edged, and associated with coloured flowers.

D. 177. to D. 182. Six porcelain CUPS and SAUCERS, of various colours exhibiting nacreous lustre, made by Messrs. Gillet and Brianchon, of Paris.

From the International Exhibition of 1862.

The peculiar pearly lustre on the surface of this porcelain is produced by the use of nitrate of bismuth as a flux. This is mixed with resin and essence of lavender as a vehicle, and associated with certain metallic oxides as colouring agents.* A similar lustre has been used, within the last few years, on Worcester and Belleek china. (*See* p. 211.)

ROMAN POTTERY.

[See specimens in Pedestal Case No. 2 ; west side.]

Roman Red Lustrous Ware.

The use of this kind of pottery appears to have extended with the Roman empire, fragments having been discovered wherever the Roman people had settled after their conquests. The date of its manufacture probably extended from the first century B.C. to the fourth century of our era.

It seems to have been employed for domestic purposes, as earthenware and porcelain now are in this country. The paste of the ware is usually of a fine sealing-wax red colour and was well worked before being wrought into shape. Vessels of this ware are generally well manufactured, the plain pieces bearing the marks of having been turned on the lathe, while the pieces which are moulded outside are in like manner carefully finished inside. The red colour is derived from the presence of peroxide of iron (ferric oxide), which is supposed to have been purposely introduced into the paste by admixture of certain ochres with the levigated clay. The glaze is generally brilliant, unless it has been decomposed from having been subjected to unfavourable conditions when buried in the

* *Specifications* of Patents, No. 1896, July 8th, 1857.

earth, and appears to have been formed of a silicate with an alkaline-earthy base, coloured by peroxide of iron. Dr. Birch suggests that a salt glaze may have been used. A piece of Roman red ware found at Châtelet, and analyzed at Sèvres, by M. Salvétat, presented the following composition :—

Silica	64·00
Alumina	17·77
Oxide of iron	10·23
Lime	4·86
Water	2·29
	99·15

The following analyses of two fragments of this ware found in London were made at the Museum of Practical Geology by Messrs. Philipps and Smith under the direction of Dr. Percy, F.R.S. :—

	I.	II.
Silica	54·45	60·67
Alumina	22·08	20·96
Peroxide of iron	7·31	5·95
Lime	9·76	6·77
Magnesia	1·67	1·22
Potash	3·22	Alkalies in small quantities.
Soda	1·76	
	100·25	95·57

Respecting this ware, M. Brongniart observes " that it was worked in " the most perfect manner, and with the aid of the greater part of the " processes and means now employed in the most perfect manufacture."* The moulding seems to have been so conducted that, with numerous stamps of different kinds, a great variety of patterns could be produced. These stamps appear to have been impressed upon a general mould, into which the moist paste was pressed, the mould being often formed of the same paste as the ware itself, and baked prior to use.† In consequence of shrinkage after drying and firing, the finished piece of ware would be smaller than the baked mould. If the latter were turned inside, when in the state of paste and before receiving the impressions from the stamps, as probably it was, the marks of the turning on a lathe would be impressed on the outer surface of the piece of ware enclosed ; and thus an explanation would be offered of the difficulty which is suggested in attempting to account for the way in which the marks from the lathe are sometimes singularly associated with the raised figures of the pattern. The moist paste of the ware inside, in the general mould, could readily be turned after it had been pressed properly against the latter, so that the fine work on the exterior need not have been handled after pressure into the general mould, and the finishing completed by the lathe inside and around the edges. Indeed, if the general mould were whole and employed as a sagger, the interior vessel in its state of paste, after drying and shrinking, might have been fired in it, thus permitting many moulded pieces to have been fired in the same kilns, moulds being like saggers, piled on each other, so as to permit the proper heat to circulate among the general collection of pieces to be fired.

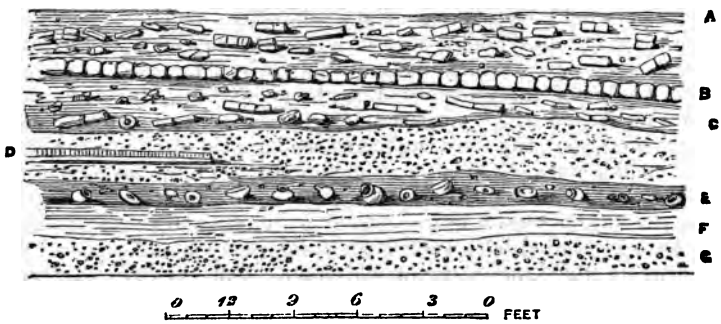
* " Traité des Arts Céramiques," tome i. p. 423.

† A mould for a Roman bowl will be found among the specimens from the Rhine (No. E. 203, p. 82).

Hitherto it has been considered doubtful whether this red lustrous ware was manufactured in the British Islands, though its remains are sufficiently common, especially at Roman stations in the south and west of England. It appears to have been imported during the Roman occupation of these countries, and, judging from the mended specimens, often discovered, seems to have been of fair value at that time; much in the same way that Chinese porcelain was prized before porcelain was made in this country. The ware is not uncommonly known to antiquaries as "Samian," from Samos having been celebrated for its manufacture of a red pottery. The Samian potters were famous about B.C. 900; but it may be doubted if any vessels of their manufacture have ever been found at the Roman stations in England. This so-called Samian ware appears to have been manufactured extensively in Italy, Gaul, and Germany; a somewhat similar material known as "Aretine ware" was made at Aretium, the modern Arezzo, in Italy. Various instruments in bronze, copper, ivory, or bone have been found where kilns for firing this ware have been discovered. Moulds also, and stamps for making them, have in like manner been obtained in certain localities where it was manufactured, as at Rheinzabern, Lezoux, Arezzo, and elsewhere. Though all this ware does not exhibit the potter's marks, a large proportion of it is found to be carefully stamped with such marks. Sometimes the name is in the nominative followed by F. (*fecit*), as, for example, MONTANVS· F., showing that *Montanus* made it; in other cases the name is in the genitive succeeded by M. (*manu*), such as CRISPINI· M., signifying that the object was the work of *Crispinus;* while the abbreviation O. or OF. or OFFI. (*officinâ*) points to the manufactory of some potter, or at some place, named in the inscription. According to Brongniart, some pieces of this ware have been found with marks engraved with a point after baking, and he observes that though in the Roman potteries found in France the potters' names are chiefly Latin, there are nevertheless some Gaulish names, such as *Divex, Vexivix, Buturix*, &c.

The annexed section (fig. 26.), exposed while the improvements were in progress in Cannon Street, City, in 1851, was recorded by Mr. Chaffers, and will serve to illustrate the manner and relative position in which this ware is usually discovered in the city of London.

Fig. 26.



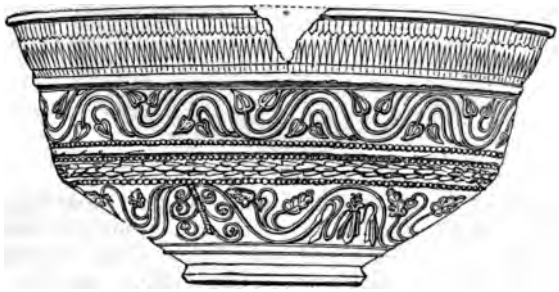
A, present level of the street. B, roadway previous to the great fire of London, 1666. C, ground in which the Norman and early English pottery is found. D, portion of Roman tesselated pavement. E, black soil, in which the red lustrous and other Roman ware is found. F, clay, resting on G, gravel.

Roman Red Lustrous Ware found in London.

E. 1. LARGE VASE; diameter at top 9½ inches; of elegant form, with pattern as in annexed figure (fig. 27). Paste or body red, with lustrous glaze in good condition. Potter's mark OF·VITAL (*Officinâ Vitalis*). Found in St. Martin's-le-Grand, London, August 1845.

Coll. Chaffers, No. 295.

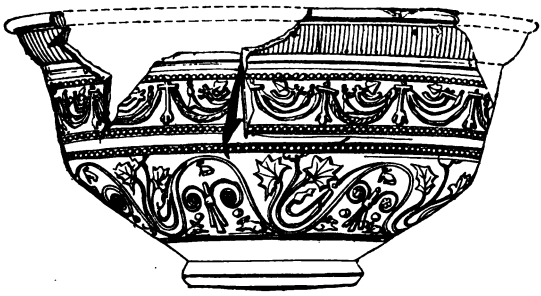
Fig. 27.



E. 2. FRAGMENT of VASE; diameter about 9½ ins. Red paste, with lustre in good condition, and pattern as in annexed figure (fig. 28). Potter's mark OF·RVFINI. Found in London.

Coll. Chaffers, No. 326.

Fig. 28.



E. 3. FRAGMENT of VASE; diameter about 9 ins. Red paste, with lustre well preserved; pattern with stags introduced. Found in Love Lane, Tower Street, London, July 1845.

Coll. Chaffers, No. 344.

E. 4. FRAGMENT of VASE; diameter about 8 ins. Red paste, with good lustre; pattern with birds introduced. Found in London, 1844.

Coll. Chaffers, No. 324.

E. 5. FRAGMENT of VASE; diameter about 8 ins. Red paste, with glaze in part decomposed; pattern with border of horizontal figures representing the Venus de' Medici (fig. 29). Found at St. Mary-at-Hill, London, July 1845.

Coll. Chaffers, No. 328.

Fig. 29.

E. 6. FRAGMENT of VASE with upright sides. Red paste, with good lustre; pattern with figure of Victory introduced. Found in Cannon Street, City, 1848.

Coll. Chaffers, No. 850.

N.B.—The remaining fragments of red ware are placed in the lower compartment of this case (opposite side).

E. 7. FRAGMENT of VASE. Red paste, with good lustre; pattern with Cupid and dog. Found in Philpot Lane, June 1845.

Coll. Chaffers, No. 376.

E. 8. FRAGMENT of VASE. Red paste, with good lustre; pattern with Roman soldiers and tripod. Found in Friday Street, City, December 1844.

Coll. Chaffers, No. 187.

E. 9. FRAGMENT of VASE. Red paste, with excellent lustre; pattern with robed figures. Found in Foster Lane, London, 1844.

Coll. Chaffers, No. 365.

E. 10. FRAGMENT of VASE. Red paste with good lustre; pattern with vine-leaves and tendrils, the stems forming a scroll with birds introduced. Found in Foster Lane, London, October 1844.

Coll. Chaffers, No. 354.

E. 11. FRAGMENT of VASE, diam. *about* 10 ins. Red paste, with good lustre; pattern with hare hunted by hounds introduced in the upper compartment, and with birds and leaves in the lower. Found in Lad Lane, City, 1842.

Coll. Chaffers, No. 322.

E. 12. FRAGMENT of VASE, diam. about 6½ inches. Red paste, with good lustre; pattern with dogs having ruffs on their necks. Potter's mark. Found in Queen Street, Cheapside, June 1850.

Coll. Chaffers, No. 954.

E. 13. FRAGMENT of VASE. Red paste, with lustre somewhat dull; pattern with nude figure holding a club. Found at St. Paul's, London, October 1843.

Coll. Chaffers, No. 216.

E. 14. FRAGMENT of VASE. Red paste, with good lustre. Found in Foster Lane, London, 1844.

Coll. Chaffers, No. 305.

This specimen has been mended by means of lead, in the same manner as porcelain is now repaired by metallic rivets. It shows the esteem in which the red ware was held in this country during the Roman occupation.

E. 15. FRAGMENT of VASE, repaired with lead. Red paste, with good lustre; pattern with dogs and leaves. Found at the Greenwich Railway Terminus, Southwark, 1841.

Coll. Chaffers, No. 325.

E. 16. FRAGMENT of VASE, repaired with lead. Paste red, with good lustre; pattern with goose or duck flying as if coming into water. Found in Queen Street, Cheapside, 1850.

Coll. Chaffers, No. 741.

E. 17. ACETABULUM, or vinegar cup, nearly perfect; diam. 4 ins. Red paste, with good lustre (fig. 30); plain surface, without ornament. Potter's mark. Found in London, 1849.

Coll. Chaffers, No. 963.

Fig. 30.

E. 18. FRAGMENT of ACETABULUM, diam. 4 ins. Red paste, with good lustre; plain. Potter's mark. Found in Nicholas Lane, London, 1850.

Coll. Chaffers, No. 955.

E. 19. FRAGMENT of CUP, diam. $3\frac{1}{8}$ ins. Red paste, with good lustre; form and pattern as in annexed figure (fig. 31). Potter's mark with footprint (fig. 32). Found at the Greenwich Railway Terminus, 1841.

Coll. Chaffers, No. 315.

The manufacture of this specimen may be referred to *Aretium* (modern *Arezzo*) by the print of the human foot that was there so commonly employed with the potter's mark, and probably had reference to the use of the foot in treading the clay. The ware of Aretium will be again referred to (p. 86).

Fig. 31.

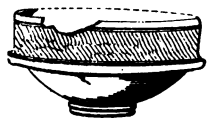


Fig. 32.

E. 20. PATERA, nearly perfect; diam. 5 ins. Red paste, with good lustre; plain. Potter's mark. Found in Bishopsgate Street, London, 1844.

Coll. Chaffers, No. 337.

E. 21. PATERA, perfect; diam. 4 ins. Red paste, with good lustre; plain. Potter's mark, DECMI·M. Found in Lad Lane, London, 1842.

Coll. Chaffers, No. 327.

This vessel bears traces of having been used over fire.

E. 22. FRAGMENT of PATERA with handles; diam. $4\frac{1}{2}$ ins. Red paste, with good lustre; plain. Found in Lad Lane, London, 1842.

Coll. Chaffers, No. 322.

E. 23. FRAGMENT of PATERA with handle. Red paste, with good glaze; plain. Potter's mark, OFF·SAB. Found in London.

Coll. Chaffers, No. 586.

E. 24. FRAGMENT of PATERA. Red paste, with moderately good lustre; leaf pattern in relief, laid on upon the rim, in slip, after the piece was turned. Found in Philpot Lane, London, 1845.

Coll. Chaffers, No. 621.

E. 25. FRAGMENT of small PATERA, with portion of handles. Red paste, with good glaze; leaf pattern in slip on rim. Found in London.

Coll. Chaffers, No. 661.

E. 26. FRAGMENT of rim of PATERA. Red paste, with lustrous glaze; leaf pattern laid on in slip of same body as the patera. Found

in Lawrence Pountney Lane, London, August 1846.

Coll. Chaffers, No. 361.

E. 27. FRAGMENT of rim of BOWL. Red paste, with good glaze; rim shows that after turning it has been cut in part, and a pattern produced by slip. Found in London.

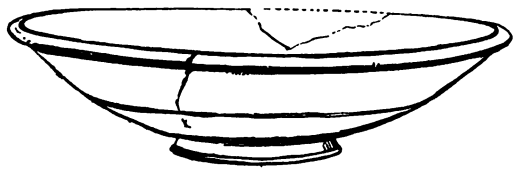
Coll. Chaffers, No. 667.

E. 28. BOWL, nearly perfect (fig. 33); diam. 9 ins. Red paste, with good lustre; plain. Potter's mark, TITIVS, inside a circle with line pattern. Found in Queen Street, City, 1850.

Coll. Chaffers, No. 953.

(In upper compartment of case.)

Fig. 33.



E. 29. DISH, not quite so perfect as last piece; diam. 9 ins. Red paste, with good lustre; plain, with lathe marks. Potter's mark, COSI·RVFIN. Found in London.

(Upper compartment.)

Coll. Chaffers, No. 331.

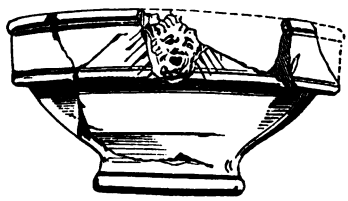
E. 30. MORTARIUM. Red paste, with good lustre; external form as in the annexed figure (fig. 34), showing a mask, through the mouth of which the ground substances were poured. Potter's mark on the inside of the mask, VLIGGI·M. Found in London.

(Upper compartment.)

Coll. Chaffers, No. 380.

The mortarium, in which substances were ground for domestic use, was lined inside up to a certain height with grains of quartz or other hard stone, forced into the paste or body after the piece was finished. The substances having been ground or pounded, and probably mixed with some liquid, were poured out through the orifice in the mouth of the mask.

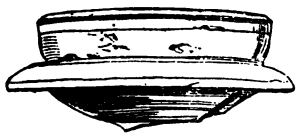
Fig. 34.



E. 31. FRAGMENT of VESSEL of uncommon external form, as represented in the annexed figure (fig. 35). Red paste, with good lustre. Found in London.

Coll. Chaffers, No. 631.

Fig. 35.



E. 32. FRAGMENT of red lustrous ware, with potter's mark, OF·MONT·ᵒK. Found in Cannon Street, London, 1848.

Coll. Chaffers, No. 844.

E. 33. FRAGMENT of red lustrous ware, with potter's mark, RI·IOGENI. Found in London.

Coll. Chaffers, No. 627.

E. 34. FRAGMENT of red lustrous ware, with potter's mark (fig. 36), MICCIO. Found in Creed Lane, London.

Coll. Chaffers, No. 516.

Fig. 36.

E. 35. FRAGMENT of red lustrous ware, with potter's mark, ROPVSI ·FF. Found in Queen Street, City.

Coll. Chaffers, No. 545.

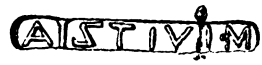
E. 36. FRAGMENT of red lustrous ware, with potter's mark, PRIMIM. Found in Cannon Street, London, 1848.

Coll. Chaffers, No. 845.

E. 37. FRAGMENT of red lustrous ware, with potter's mark, AISTIVI·M (fig. 37). Found in Creed Lane, London.

Coll. Chaffers, No. 533.

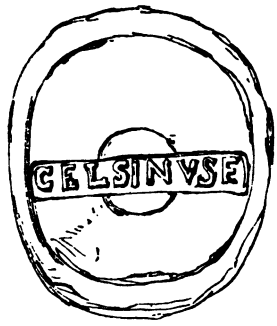
Fig. 37.



E. 38. FLAT CATINUS. Red paste, with lustre; plain. Potter's mark, CELSINVS·F (fig. 38). Found in Staining Lane, London, 1845.

Coll. Chaffers, No. 308.

Fig. 38.



Red Lustrous Ware found at Castor and Colchester.

E. 39. LARGE FRAGMENT of upright-sided VASE (fig. 39); diameter, 8 inches. Red paste, with lustre in part dull and decomposed. Pattern as in the annexed figure. A crack in this piece shows the way in which it has been united in two places, by lead rivets, in the time of the Roman occupation of England. Found at Castor (the ancient Durobrivæ), near Peterborough, Northamptonshire.

(Upper compartment of case.)

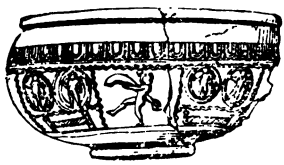
Coll. Artis.—Presented by Earl Fitzwilliam.

Fig. 39.

E. 40. LARGE FRAGMENT of BOWL (fig. 40). Diameter, about 6 inches. Red paste, with lustre in part decomposed. Pattern as in annexed figure. Exhibits ancient lead rivetting. Found at Castor, Northamptonshire.

Coll. Artis.—Presented by Earl Fitzwilliam.

Fig. 40.



E. 41. FRAGMENT of BOWL, exhibiting lead rivets in two places. Red paste, with glaze in part decomposed. Pattern with nude figure playing on a lyre. Found at Castor, Northamptonshire.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 42. FRAGMENT of large BOWL. Red paste, with lustrous glaze. Pattern, a female figure in arch supported by tripods. Potter's mark in large letters outside, MVRES. Found at Castor, Northamptonshire.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 43. FRAGMENT of large BOWL. Red paste, with lustrous glaze. Pattern, an elegant scroll. Found at Castor, Northamptonshire.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 44. SHALLOW BOWL, perfect. Diameter, 9¾ inches. Red paste, with glaze in good condition inside, but decomposed outside. Potter's mark, CRISPINI, within a rayed circle. Found at Castor, Northamptonshire.

(Upper compartment.)

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 45. FRAGMENT of BOWL, mended in two places with lead rivets. Red paste, with lustrous glaze. Pattern contains a female figure with helmet, shield, and spear, perhaps representing Minerva; also figure of a boar. Found at Castor, Northamptonshire.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 46. FRAGMENT of BOWL, mended by a lead rivet. Red paste, with good glaze. Found at Castor, Northamptonshire.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 47. to E. 49. FRAGMENTS of BOWLS, ornamented with different patterns.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 50. FRAGMENT of a somewhat large MORTARIUM, with grains of quartz inserted in the part used for rubbing down or grinding substances. Red paste, with good glaze; plain. Found at Castor, Northamptonshire.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 51. FRAGMENT, with potter's mark, VINIINO·M. Found at Castor, Northamptonshire.

E. 52. FRAGMENT, with potter's mark, AIISTVI·M, and circle passing amid the lettering. Found at Castor, Northamptonshire.

E. 53. FRAGMENT, with potter's mark, ADIECTI·M, with a small circle passing amid the letters. Found at Castor, Northamptonshire.

E. 54. FRAGMENT, with potter's mark, LVIIV·M, inside a circle. Found at Castor, Northamptonshire.

Nos. 51 to 54 from Coll. Artis.—Presented by Earl Fitzwilliam.

E. 55. BOWL, restored from numerous fragments, and parts supplied with plaster of Paris. Diameter, 9 inches. Red paste, with hard lustrous glaze. Exhibits lead rivets in several places where repaired during the Roman occupation of this country. Found at Colchester.

(In upper compartment of case.)
Presented by the late Rev. Professor Henslow.

E. 56. FRAGMENT of a MORTARIUM; diameter, 6 inches. Red glazed body, plain. Grains of quartz inserted into the paste in the interior, for a rubbing surface, apparently after it was turned on a lathe. Found at Colchester.

E. 57. FRAGMENT of a larger MORTARIUM in red glazed ware, with a lion's head on the outer rim, the open mouth serving for a passage through which the pounded or bruised matters were poured out, suspended in some liquid. Found at Colchester, 1850.

E. 58. FRAGMENT of BOWL in red lustrous ware, showing apparently an ancient fragment united to a broken bowl by three rivets of lead. Lathe marks on the exterior show that the bowl was turned in the upper part after removal from the general mould giving the pattern. Found at Colchester.

E. 59. FRAGMENT of BOWL in red glazed ware, with part of pattern of same kind as, though smaller than, that seen on fig. 39, namely, the figure of a man whose lower limbs terminate in serpents. Found at Colchester.

E. 60. BOTTOM of BOWL in red glazed ware, with potter's mark, ALBVCI·M. Found at Colchester.

E. 61. FRAGMENT of red glazed ware, with figure of lion in bas-relief. Found at Colchester.

E. 62. FRAGMENT of red glazed ware, with figure of rabbit or hare in bas-relief. Found at Colchester.

E. 63. to E. 68. } FRAGMENTS of BOWLS in red glazed ware. Found at Colchester.

Other kinds of Roman Pottery found in England.

[Placed in upper compartment of Case 2.]

E. 69. MODEL of a ROMAN KILN for firing pottery, found in Normangate Field, Castor, near Peterborough, which, according to Mr. E. T. Artis, was the ancient *Durobrivæ* of Antoninus.

Coll. Artis.—Presented by Earl Fitzwilliam.

The accompanying sketch (fig. 41) is a reduction of the representation of this kiln given by Mr. Artis, in his *Durobrivæ of Antoninus, Illustrated*, pl. XL., fig. 3. The kiln was discovered in December 1822, and vessels and fragments of pottery were found in connexion with this and another kiln mentioned on next page, many of which are in this collection. Both kilns were of small size.

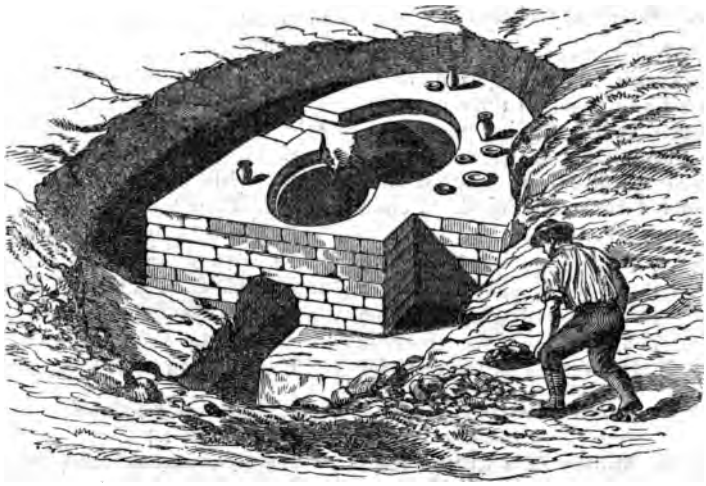
Fig. 41.

E. 70. MODEL of another ROMAN KILN for firing pottery, found in Normangate Field, Castor; December 1822.

Coll. Artis.—Presented by Earl Fitzwilliam.

This kiln is figured by Mr. Artis in his *Durobrivæ of Antoninus*, pl. XL., fig. 1, from which the annexed figure is reduced (fig. 42). In pl. XXXIX. of the work just mentioned will be found a plan of the ground occupied by the Roman pottery, showing the site of the pottery and the course of a Roman road. Both these wax models were constructed by Mr. Artis.

Fig. 42.



E. 71. to E. 78. Eight BONE or IVORY TOOLS, found on the site of the Roman pottery at Castor in 1822 and 1823, by Mr. E. T. Artis, and in part figured by him in his *Durobrivæ of Antoninus*, pl. XLIII.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 79. to E. 83. Five BRONZE TOOLS found on the site of the Roman pottery at Castor, with the above, by Mr. Artis, and figured by him in his work above mentioned, pl. XLII.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 84. BRONZE INSTRUMENT, from the collection made at Castor, the use of which is not clear, but which may have been employed at the pottery.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 85. SHAPED BONE, from Castor, apparently intended to smooth some soft substance, like potter's clay, a handle being inserted into the central perforation.

Coll. Artis.—Presented by Earl Fitzwilliam.

E. 86. LARGE FRAGMENT of a CAKE of GLASS or FRIT (fig. 43), found on the site of the Roman pottery at Castor, probably such as was there used for glazing the pottery.

Coll. Artis.—Presented by Earl Fitzwilliam.

Fig. 43.

The composition of this substance, according to an analysis made at the Museum of Practical Geology, is as follows:—

Silica	69·40
Alumina	2·62
Protoxide of iron	0·91
Protoxide of manganese	0·64
Magnesia	0·79
Lime	7·81
Potash	0·98
Soda	14·63
Carbonic acid	0·32
	98·10

It is thus a glass composed essentially of the silicates of soda and lime, and having a composition similar to that of much of the ancient Roman glass. Compare analyses of specimens from Naples in the Museum.

E. 87. CAKE of IRON, much oxidized, rudely cast in the bottom of a crucible or mould. Found on the site of the Roman pottery at Castor.

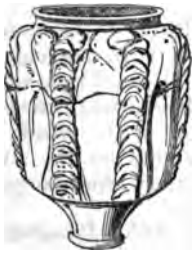
Coll. Artis.—Presented by Earl Fitzwilliam.

E. 88. VASE (fig. 44), 6 inches high. Paste, yellowish brown, with reddish-brown glaze, having a slightly metallic lustre. Sides impressed in six compartments, with the intervening ridges ornamented with imbricated scales, apparently made by overlapping cut pieces of the clay before glazing. Found in a Roman pottery kiln, Normangate Field, Castor; December 25, 1822.

Coll. Artis.—Presented by Earl Fitzwilliam.

This specimen is figured in Artis's *Durobrivæ*, pl. LIII., fig. 1.

Fig. 44.

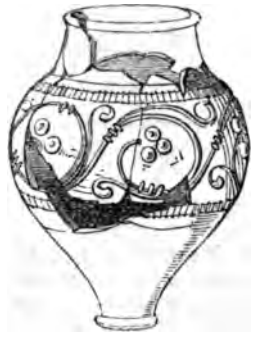


E. 89. VASE (fig. 45), 5¼ inches high. Paste, yellowish brown, with black glaze, ornamented with elegant engobe scroll applied in white pipeclay. Tool marks before glazing above and beneath the scroll. Found in a Roman building near Water Newton, Northamptonshire; February 1826.

Coll. Artis.—Presented by Earl Fitzwilliam.

Figured in Artis's *Durobrivæ*, pl. XLI. fig. 1.

Fig. 45.



E. 90. VASE (fig. 46), 6¾ inches high. Body yellowish white, with stronger yellow on the exterior. Painted with black as represented in the figure. Found at the Roman pottery, Normangate Field, Castor, 1826.

Coll. Artis.—Presented by Earl Fitzwilliam.

Figured in Artis's *Durobrivæ*, pl. XLVII., fig. 1.

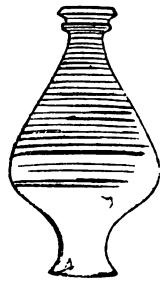
Fig. 46.

E. 91. VASE (fig. 47), 4¾ inches high. Body light brown, unglazed. Found in a Roman potter's kiln, Normangate Field, Castor; December 25, 1822.

Coll. Artis.—Presented by Earl Fitzwilliam.

Figured in Artis's *Durobrivæ*, pl. LIV., fig. 2.

Fig. 47.

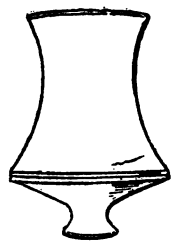


E. 92. VASE (fig. 48), 3¼ inches high. Body white, with red glaze, dark coloured where most fired. Found in a Roman potter's kiln, Normangate Field, Castor; December 25, 1822.

Coll. Artis.—Presented by Earl Fitzwilliam.

Figured in Artis's *Durobrivæ*, pl. LIV., fig. 1.

Fig. 48.

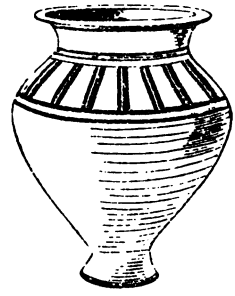


E. 93. VASE (fig. 49), 6½ inches high. Body dark coloured, as if from a carbonaceous clay not highly fired. Pattern produced partly by glossy lines upon a dull ground, as if from smoothing pressure by a tool, and partly by bands from turning in a lathe. Found, February 1826, in a Roman building at Water Newton, Northamptonshire.

Coll. Artis.—Presented by Earl Fitzwilliam.

Figured in Artis's *Durobrivæ*, pl. LI., fig. 2.

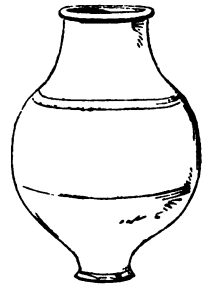
Fig. 49.



E. 94. VASE (fig. 50), 5 inches high. Paste light red, with red glaze. Found on the site of the Roman pottery at Castor.

Coll. Artis.—Presented by Earl Fitzwilliam.

Fig. 50.



E. 95. BOTTLE, 6½ inches high. Body white, with coating or glaze which is dull and black where most fired, and blackish brown elsewhere; ornamented with bands of tool marks. Found on the site of the Roman pottery, Normangate Field, Castor.

Coll. Artis.—Presented by Earl Fitzwilliam.

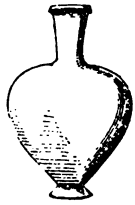
Figured in Artis's *Durobrivæ*, pl. XLVII., fig. 4.

E. 96. UNGUENTARIUM (fig. 51), 4 inches high. Body brown, with dull blackish-brown coating. Found at Castor, Northamptonshire.
Coll Artis.—Presented by Earl Fitzwilliam.

Fig. 51.

E. 97. UNGUENTARIUM (fig. 52), 2½ inches high. Body brown, with dull brown coating. Found at Castor.
Coll. Artis.—Presented by Earl Fitzwilliam.

Fig. 52.



E. 98. } UNGUENTARIA. Body
E. 99. } yellowish brown, with brown coating. Found at Castor.
Coll. Artis.—Presented by Earl Fitzwilliam.

E. 100. UNGUENTARIUM (fig. 53), 2½ inches high. Body reddish, with traces of glaze. Found at Castor.
Coll. Artis.—Presented by Earl Fitzwilliam.

Fig. 53.

E. 101. LAMP. Paste yellowish brown, with dull red glaze. Found at Castor, 1826.
Coll. Artis.—Presented by Earl Fitzwilliam.
Figured in Artis's *Durobrivæ*, pl. XLVII. fig. 3.
Many other specimens of Roman pottery found at Castor are exhibited in the lower part of this case. (*See* page 77.)

E. 102. VASE (fig. 54), 8 inches high. Paste yellowish brown, similar to that of much pottery found at Castor, and probably manufactured there; glaze in larger and upper portion black, ornamented with slip in white pipeclay, and with two bands of tool marks made before glazing; stem of vase glazed red. Found at Winchester.
Coll. Chaffers, No. 707

Fig. 54.

E. 103. VASE, 4¾ inches high. Body blackish gray, with smoothed surface, ornamented with band of crossed lines forming a diamond pattern. Found at Winchester.

Coll. Chaffers, No. 708.

E. 104. VASE, 6 inches high. Paste yellowish brown, coated with black glaze on the larger and upper portion, and red glaze on the stem; pattern made by tool marks in band; general character resembling No. E. 102. Found at Colchester in 1851.

E. 105. VASE, 3 inches high. Body yellow and earthy, unglazed. Found at Colchester in 1851.

E. 106. VASE, 4½ inches high. Paste yellowish brown, with rough ash-coloured exterior, ornamented with simple lines turned on a lathe. Found at a depth of seven feet in brick-earth at Murston, Sittingbourne, Kent.

Presented by T. McK. Hughes, Esq., M.A., F.G.S., F.S.A.

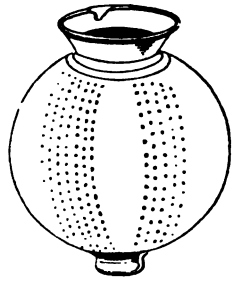
E. 107. VASE, 7¾ inches high. Body dark gray, with a kind of glazing produced by pressure or smoothing of parts of the surface, ornamented with vertical lines in the lower portion. Found in Kent Street, Southwark, 1847.

Coll. Chaffers, No. 705.

E. 108. VASE (fig. 55), 4½ inches high. Paste reddish where most fused, of darker colour in other parts; glaze black; shape globose, with vertical bands of dots upon a plain turned surface. the dots probably laid on in the manner of stencilling. Found in Queen Street, Cheapside, June 1850.

Coll. Chaffers, No. 958.

Fig. 55.



E. 109. VASE (fig. 56), 4½ inches high. Paste white, with dark glaze having metalloid lustre, ornamented with hounds hunting a stag, in slip of the same kind as the paste, applied after the vase was turned; tool work at the bottom. Found in Cateaton Street, London; January 1845.

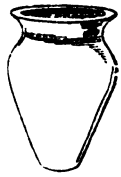
Coll. Chaffers, No. 234.

Fig. 56.

E. 110. VASE (fig. 57), 3½ inches high. Body light brownish red, unglazed. Found in London.

Coll. Chaffers, No. 190.

Fig. 57.



E. 111. LARGE AMPHORA (fig. 58), height 2 feet 9 inches, greatest diameter 2 feet. Body light brown,

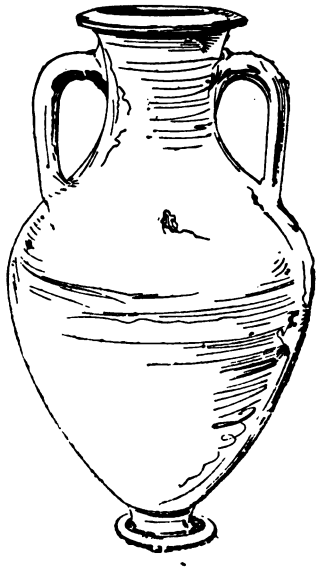
not fine, but well worked, like many Roman tiles, unglazed. Found at Aldermanbury, London.
Coll. Chaffers, No. 989.

This specimen, on account of its unusually large size, could not be exhibited in this case, and is therefore mounted on a tripod which stands on the top of Wall Case XL.

Fig. 58.

E. 112. AMPHORA (fig. 59), height 17 inches. Body light brown, unglazed. Found in digging the foundation of London Bridge.
Coll. Chaffers, No. 135.

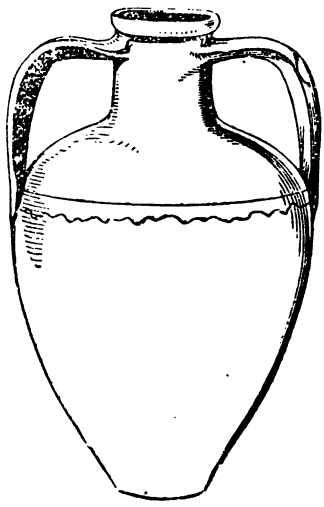
Fig. 59.



E. 113. AMPHORA (fig. 60), height 16¾ inches. Body red, unglazed, ornamented with a zig-zag and a plain band running round the shoulder at the base of the handles. Found in Old Broad Street, London, August 1850.

Coll. Chaffers, No. 962.

Fig. 60.

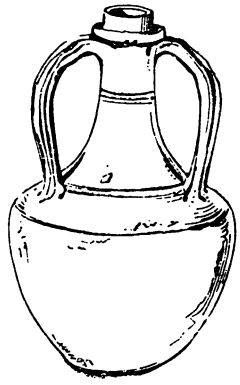


E. 114. AMPHORA, height 9½ inches. Body light brown, finer texture, unglazed. Found in Moorgate Street, London, 1837.

Coll. Chaffers, No. 711.

E. 115. AMPHORA, of peculiar form (fig. 61); height 8¾ inches.

Fig. 61.



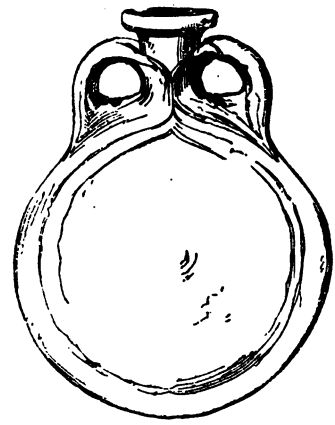
Body light reddish brown, covered with red coating, much resembling a dull decomposed red glaze. Found in Cannon Street, London.

Coll. Chaffers, No. 718.

E. 116. FLATTENED AMPHORA (fig. 62), resembling a pilgrim's bottle; height 7½ inches. Body dull reddish brown, unglazed, red markings round the flattened sides. Found in Moorgate Street, London, 1835.

Coll. Chaffers, No. 713.

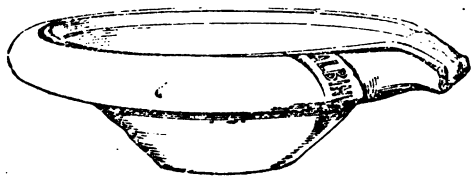
Fig. 62.



E. 117. MORTARIUM (fig. 63); diameter 10¾ inches. Body light brown, somewhat coarse, unglazed. Potter's mark, ALBINVS. Found in Cock Lane, Smithfield, London, April 1844.

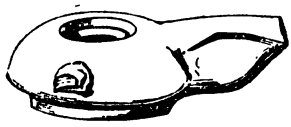
Coll. Chaffers, No. 119.

Fig. 63.



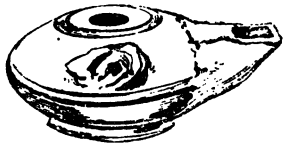
E. 118. LAMP (fig. 64). Body yellowish brown, with black glaze, Found in Queen Street, Cheapside, London, 1842.
Coll. Chaffers, No. 255.

Fig. 64.



E. 119. LAMP (fig. 65). Body yellowish brown; glaze nearly removed by decomposition, the portions that remain being black. Found in Lad Lane, London, 1842.
Coll. Chaffers, No. 237.

Fig. 65.



E. 120. LAMP, for fixing on a point (fig. 66). Body red, partly painted black, glaze transparent, apparently over the whole. Found in Queen Street, Cheapside, London, 1842.
Coll. Chaffers, No. 249.

Fig. 66.

E. 121. LAMP. Body light brown, coated with red covering, much decomposed; ornamented with wreath of laurel. Found in London.
Coll. Chaffers.

E. 122. SMALL LAMP, imperfect. Body yellowish brown, covered with red glaze. Found in London.
Coll. Chaffers.

E. 123. TERRA-COTTA TOY (fig. 67), representing a boy on horseback. Body reddish brown. Found in the Borough (Southwark), 1840.
Coll. Chaffers, No. 715.

Fig. 67.

E. 124. TERRA-COTTA TOY (fig. 68), representing a boy partly draped. Found in London.

Coll. Chaffers, No. 772.

Fig. 68.

E. 125. TERRA-COTTA TOY. Armed female head, perhaps that of Minerva, with part of a shield and of a spear. Found in Lad Lane, London.

Coll. Chaffers, No. 250.

[N.B. The remaining specimens of Roman pottery found in Britain are placed in the lower part of the case.]

E. 126. VASE, 7½ inches high, with six impressions in the sides. Body brown, with purplish glaze having metalloid lustre. Found at Fordingbridge, Hampshire.

E. 127. to E. 132. SIX VASES, similar to last piece, heights ranging from 7½ to 3 inches. Body light gray, with purplish glaze, slightly metallic in lustre, more or less decomposed. Found at Fordingbridge, Hampshire.

All these vases are characterized by impressions in the sides, resembling those in fig. 69. Some of these indentations appear to have been made by pressure of the thumb, and in No. E. 132 they are so deep as almost to meet inside the vessel, and thus nearly obliterate the cavity. This specimen, being small, has only four impressions, while each of the others has six. Most of them exhibit tool marks in the form of indented lines running round either the neck or the body.

E. 133. VASE, bottle shaped, neck and base broken. Paste yellowish brown, with red coating, darker where burnt; ornamented with vertical lines in white engobe, and horizontal tool marks round the neck. Found in the New Forest, Hampshire.

E. 134. VASE, bottle shaped, neck broken. Paste reddish brown with purplish glaze, darker where apparently exposed to fire. Found in the New Forest, Hampshire.

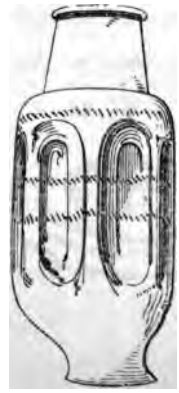
E. 135. VASE, 7¼ inches high. Body gray, rendered coarse by numerous fragments of flint made white by the firing of the vase, unglazed. Found in Wells Street, Cripplegate, London June 1846.

Coll. Chaffers, No. 129.

E. 136. VASE (fig. 69), 5¾ inches high. Paste red where most fused, darker colour inside; glaze black, the red tint of the paste somewhat apparent through the glaze; pattern produced by tool marks in bands, after turning on the lathe; the sides depressed in seven compartments. Found in Lothbury, London, 1847.

Coll. Chaffers, No. 173.

Fig. 69.



E. 137. VASE (fig. 70), 4⅜ inches high. Body yellowish brown, unglazed. Found in London.

Coll. Chaffers, No. 770.

Fig. 70.

E. 138. PART of a VASE, 6½ inches high. Paste yellowish brown, similar to that often mentioned from Castor; glaze preserving colour of the paste, except at the bottom, where darker colour is seen, tinted, perhaps before glazing; pattern, three lines of tool work, and eight large indentations on the widest circumference. Found at Castor, Northamptonshire.

Coll. Artis.

E. 139. PART of a VASE, 5 inches high. Body white, outer coating dull gray. Found at Castor.

Coll. Artis.

E. 140. PART of a VASE (fig. 71). Paste whitish, but glaze more red, and with slight metalloid lustre; pattern, raised scroll. Found at Castor.

Coll. Artis.

Fig. 71

E. 141. SMALL VASE, 3 inches high. Body gray, unglazed, outside yellowish and blackish. Found at Castor.

Coll. Artis.

E. 142. SMALL VASE. Paste fired yellowish brown, covered with a dull red glaze, not well vitrified. Found on the site of the Roman pottery at Castor in 1826.

Coll. Artis.

Figured in Artis's *Durobrivæ of Antoninus*, pl. XLVII., fig. 2.

E. 143. PORTION of a small VASE, ribbed outside. Paste reddish yellow; glaze brownish; apparently the red body somewhat highly fired. Found at the Roman pottery, Castor.

Coll. Artis.

E. 144. } TWO HEADS of JUGS,
E. 145. } with trefoil lips. Body gray white with dull ash-coloured exterior. Found at Castor.

Coll. Artis.

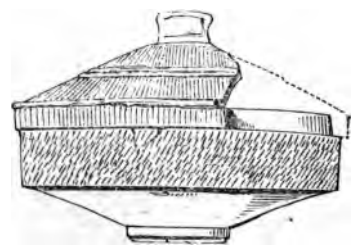
This form appears to have been somewhat common at the Castor pottery, as many similar examples have been found there.

E. 146. VESSEL, with portion of its COVER (fig. 72). Height 5 inches, diameter 6½ inches. Paste yellowish, white where most fired, darker tint where least so; glaze red, imperfectly and unequally fused; pattern produced partly by turning on a lathe, and partly by impressions with a tool. Found in a Roman building, Suttonfield, near Castor.

Coll. Artis.

This specimen is represented in Artis's *Durobrivæ of Antoninus*, pl. XLIX., fig. 4.

Fig. 72.



E. 147. SHALLOW BOWL, 6¾ ins. in diameter. Body gray white, glaze dark, with metallic lustre from admixture of pounded mica. Bottom cracked in the firing, probably a piece cast aside. Found at Castor.
Coll. Artis.

E. 148. PART of a BOWL-FORMED VESSEL. Body gray white, with dull ash-coloured exterior, pattern indented by tool marks. Found at Castor.
Coll. Artis.

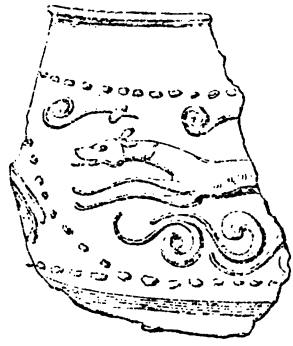
E. 149. FRAGMENT of VESSEL similar to No. 146, but of larger dimensions, its curve giving a diameter of about 12½ inches. Body white, glaze red in the interior, but dark coloured outside where more fired. Found at Castor.
Coll. Artis.

E. 150. FRAGMENT of VASE, 4½ inches high. Body white, glaze or coating dull black, with somewhat metalloid lustre inside, and towards the base outside; pattern in raised cross lines forming diamonds, as if from pressure in a mould. Found at Castor.
Coll. Artis.

E. 151. FRAGMENTS of pottery. Paste yellowish red, with brown glaze unequally fired. Pattern, an elegant scroll in relief, in part crazed. Found at Castor.
Coll. Artis.

E. 152. FRAGMENT of pottery (fig. 73). Paste yellowish red, with lustrous glaze, somewhat metalloid. Pattern, hound chasing a deer, with scroll work in relief in engobe. Found at Castor.
Coll. Artis.

Fig. 73.



E. 153. FRAGMENT of pottery, similar to last, perhaps part of the same vase. Found at Castor.
Coll. Artis.

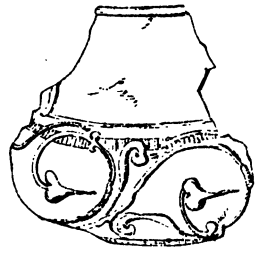
E. 154. FRAGMENT of pottery. Paste yellowish red, glaze apparently very highly fired. Pattern, elegant scroll in relief. Found at Castor.
Coll. Artis.

E. 155. FRAGMENT of pottery (fig. 74). Paste whitish, glaze with somewhat metalloid lustre. Pattern, elegant scrolls in relief. Found at Castor.
Coll. Artis.

Fig. 74.

E. 156. FRAGMENT of pottery (fig. 75), similar to last. Pattern, raised scrolls, seen to pass over indentations made previously by a tool on the surface of the vase, after turning on the lathe, the marks of which can be traced. Found at Castor.
Coll. Artis.

Fig. 75.



E. 157. FRAGMENT of pottery. Paste yellowish red, glazed inside and outside. Found at Castor.
Coll. Artis.

E. 158. } FRAGMENTS of similar
E. 159. } pottery, showing method of adding raised dots for a band of fruit or flowers by dapping prepared clay on the surface of the vase after turning. Found at Castor.
Coll. Artis.

E. 160. FRAGMENT of similar pottery; pattern uncommon. Found at Castor.
Coll. Artis.

E. 161. FRAGMENT of similar pottery, with lustrous glaze and scroll pattern. Found at Castor.
Coll. Artis.

E. 162. FRAGMENT of similar pottery, but with paste more white; raised pattern, nude figure of a man with belt round his loins. Found at Water Newton, Northamptonshire; November 1827.
Coll. Artis.
Figured by Artis in his *Durobrivæ of Antoninus*, pl. XXX., fig. 4.

E. 163. FRAGMENT of similar pottery (fig. 76); part of pattern, a hare in relief. Found at Castor.
Coll. Artis.

Fig. 76.

E. 164. FRAGMENT of similar pottery. Found at Castor.
Coll. Artis.

E. 165. FRAGMENT of similar pottery. Found at Castor.
Coll. Artis.

E. 166. } FRAGMENTS of pottery
E. 167. } (fig. 77). Paste yellow-
E. 168. } ish brown, glaze black, with engobe pattern in white pipeclay; tool marks before glazing. Found in a potter's kiln, Normangate Field, Castor; December 25, 1822.
Coll. Artis.
These fragments, apparently arranged as one, to show pattern, are figured in Artis's *Durobrivæ*, pl. III., fig. 2.

Fig. 77.

E. 169. FRAGMENT of pottery. Paste yellowish brown, with dark brown glaze. Portion of a vase with impressed side and two ridges ornamented with imbricated scales in red paste.
Coll. Artis.

E. 170. FRAGMENT of pottery. Paste whitish, covered with red glaze, better fired on the outside than the inside, ornamented externally with pattern in white pipeclay engobe. Found at Castor.
Coll. Artis.

E. 171. FRAGMENT of pottery. Paste yellowish brown, glaze or covering red and earthy, not well vitrified.
Coll. Artis.

E. 172. FRAGMENT of pottery. Paste yellowish brown covered with red glaze, somewhat highly fired, so as to assume a brown tint; outside ornamented by indentation with a tool. Found at Castor.
Coll. Artis.

E. 173. FRAGMENT of pottery, portion of a bowl. Paste yellowish brown with red glaze not well vitrified, though possessing somewhat of the metalloid lustre inside; pattern produced by impressions with a tool. Found at Castor.

Coll. Artis.

E. 174. } FRAGMENTS of pottery,
E. 175. } apparently of bowls. Body black to gray white, from differences arising from the different amount of firing given to the original carbonaceous clay; patterns produced by tool impressions, for which compasses have been employed. Found in the Roman pottery at Castor.

Coll. Artis.

E. 176. FRAGMENT of pottery. Body whitish gray, with dark exterior; pattern produced by glossy intersecting lines. Found at Castor.

Coll. Artis.

E. 177. FRAGMENT of BAKED CLAY, of reddish brown colour, with imprints of workman's fingers. Found at the Roman pottery, Castor.

Coll. Artis.

Nos. E. 138 *to* E. 177 *presented by Earl Fitzwilliam.*

E. 178. FRAGMENT of pottery. Body gray with dark exterior; pattern in white engobe. Found in the New Forest, Hampshire.

E. 179. FRAGMENT of CUP. Body light brown, unglazed. Found in Holt Forest, Hampshire.

E. 180. FRAGMENT of pottery. Body blackish brown, highly fired; glaze lustrous; pattern partly from turning, partly from tool marks. Found in Holt Forest, Hampshire.

E. 181. FRAGMENT of CUP in similar ware. Found in Hampshire.

E. 182. FRAGMENT of pottery. Body white outside where most fired, gray inside; pattern with tool-mark impressions. Found at Colchester.

E. 183. FRAGMENT of VASE. Paste white, glaze black, with pattern in yellowish white engobe. Found at Colchester.

E. 184. FRAGMENT of pottery. Body white; glaze red inside, black outside, the latter probably produced by being more highly fired; lustre somewhat metallic; pattern, part of an engobe scroll on glaze in white pipeclay. Found at Colchester.

E. 185. FRAGMENT of pottery. Body yellowish brown, glaze red, with engobe of white pipeclay. Found at Colchester.

E. 186. FRAGMENT of pottery. Body white, glaze red, with angular pattern in white engobe. Found at Colchester.

The engobe has apparently been laid on before firing, inasmuch as at the places which it has once covered, but from which it has now fallen off, the glaze is more red, from having been less exposed to the heat than in other places where the original red glaze is blackened.

E. 187. FRAGMENT of pottery. Paste red, with dark exterior and raised dots. Found at Colchester.

E. 188. FRAGMENT of pottery. Body white, stained red outside; pattern from tool marks. Found at Colchester.

E. 189. FRAGMENT of pottery. Paste brownish red, coarse, unglazed; pattern from tool marks. Found at Colchester.

E. 190. FRAGMENT of pottery, apparently part of a vase, with indented sides. Body red where most fired, dark inside; glaze dark coloured. Found at Colchester.

Presented by the late Rev. Prof. Henslow.

A rough surface is given to this body apparently by pounded fragments of pottery scattered on the exterior before glazing.

E. 191. FRAGMENT of BOWL. Body dark coloured inside, white where most fired externally; the dark colour probably due to carbonaceous matter; glaze black. Found at Colchester.

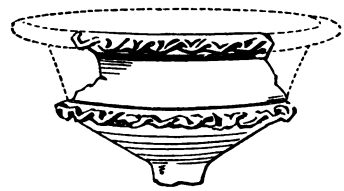
E. 192. } FRAGMENTS of pottery
E. 193. } with tool-mark indentations. Found at Colchester.

E. 194. FRAGMENT of pottery. Body light brown, unglazed; pattern from tool marks. Found at Colchester.

E. 195. LARGE FRAGMENT of VASE (fig. 78). Body light brown, somewhat coarse, unglazed; pattern with tool marks. Found in St. Martin's-le-Grand; October 1845.

Coll. Chaffers, No. 167.

Fig. 78.



[The following specimens of Roman bricks and tiles are provisionally placed on a plinth at the foot of the balustrade, near to Pedestal Case No. 55, on the eastern side.]

E. 196. ROMAN BRICK or TILE (fig. 79), square, 7¾ inches in the side. Body red; inscribed P. PR. BR. Found March 1850, in Queen Street, City, London.

Coll. Chaffers, No. 745.

Fig. 79.

E. 197. ROMAN BRICK or TILE. Body red. Found at Colchester, 1850.

E. 198. LARGE ROMAN BRICK or TILE. Found in Lower Thames Street, London.

Presented by T. B. Bunning, Esq.

E. 199. LARGE ROMAN BRICK, from the Roman wall of Bustum tumulus No. 3, Rougham, Suffolk.

Presented by the late Rev. Prof. Henslow.

E. 200, } ROMAN ROOFING TILES,
a, b, & c. } found in London.

Coll. Chaffers, No. 717.

200*a* is the *imbrex* or ridge tile which rests upon the *tegulæ b* and *c*, or flat tiles, each with two flanges, so that the ridge tiles cover them in such a manner as to prevent the water from passing beneath. The ridge tile is wider at one end than at the other, in order that it may cover the next tile in succession under it, thus forming a ridge down the roof.

E. 201. HOLLOW FLUE-BRICK or TILE (fig. 80), 16½ inches long, 6½ inches high, and 4½ inches deep. Body red. Found, August 1846, in Duck's-foot Lane, London.

Coll. Chaffers, No. 117.

These tiles were used by the Romans to convey heated air. The upper and lower parts of the specimen are scored to secure adhesion of the cement or mortar.

Fig. 80.

E. 202. ROMAN DRAIN or WATER PIPE. Length, 24 inches; inside diameter, 1½ inches. Found in London, 1848.

Coll. Chaffers.

This specimen formed one of a series in which each pipe was joined to the next in succession by the insertion of a small portion of its end. A fragment of the adjoining pipe is seen cemented to this specimen.*

Roman Pottery from the Rhine for Comparison with that found in England.

(Upper compartment of Case 2.)

As water carriage down the Rhine would have afforded easy means of establishing with Britain a trade in the pottery which was made at several important stations on that river, it has been thought desirable to obtain some illustrative specimens of Roman pottery from the Rhine for comparison with similar ware discovered in Britain. Those selected for this object have been chiefly obtained from the collections of M. Levens, of Cologne, and are stated to have been discovered in that city or its vicinity; but even should they not all have been found there, yet, coming certainly from the Rhenish districts, they are important for the purpose contemplated. They serve as excellent illustrative examples of this kind of pottery, as manufactured on the north of the Alps. Cologne (*Colonia Agrippina*) became a large and flourishing place after A.D. 51, when the Emperor Claudius planted a colony there, naming it after his wife, whose birthplace it was.† Hence the pottery either made or used there is valuable for comparison, particularly when we consider the facility of water carriage to and from that station. By means of the Rhine and Moselle, trade in pottery could easily have been carried on with Trèves or Trier (*Augusta Trevirorum*), once the capital of the Roman empire, while the mouths of the Rhine would afford ready means of communication with Britain. It seems probable that red lustrous Roman ware of Rhenish manufacture ‡ was introduced into Britain.

E. 203. MOULD for a Roman bowl, in buff-coloured ware, impressed on the inside with festoon-and-tassel border, a Roman warrior, two soldiers in conflict, and an equestrian soldier, with rabbits, dogs, &c. below; stamped in the side with potter's mark, COBNE-RIVS·F. From the Rhine.

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* Some pieces of Roman pottery found near Gray's Thurrock, Essex, presented by R. Meeson, Esq., are placed with other antiquities from that locality, in a small case standing on the model of the Water-wheels, No. 36.

† This locality was first used as a Roman camp. It became the chief town of the Ubii (*Oppidum* or *Civitas Ubiorum*) after that tribe was removed thither from the right bank of the Rhine under Tiberius.

‡ This ware was certainly manufactured at Heilegenberg, about five leagues from Strasburg, where some of it was found in a Roman pottery kiln. The remains of Roman pottery kilns have been found in several localities near the Rhine, as at Rheinzabern (*Taberna Rheni*), four leagues from Lauterberg, where fifteen kilns were discovered within a small area; Ittenweiler, four leagues from Heilegenberg, &c.

The ornaments have been punched on the inside of this mould from separate stamps, and the three principal subjects repeated four times each, thus forming a band of twelve figures. When the moist paste of a piece of ware was pressed into the mould the ornaments would appear on the exterior as bas-reliefs. The foot of the bowl would probably be formed from a separate piece and affixed subsequently.

E. 204. Bowl of Roman red lustrous ware, perfect, and consequently very rare. Height, 6 inches; diameter, 10 inches. Paste sealing-wax red; glaze lustrous; design (fig. 81), a soldier in armour, with sword and shield, engaged in combat with a retiarius, holding on his left arm a net with a sword, and in his right hand a three-pronged spear; also a draped figure presenting a palm branch to an emperor seated on a curule chair. Found at Cologne.

Coll. Levens.

The manufacture and character of this bowl, and generally of the following specimens of the same ware from Cologne, closely agree with those of specimens of similar pottery found in England, where there is little or no evidence of any of it having been made. Indeed it is not improbable that a considerable portion at least of this ware was derived from South Germany.

Fig. 81.

E. 205. Two-handled Vase of red ware (fig. 82), 7½ inches high, 5 inches greatest diameter. Round the widest part of the vase is a design laid on in slip or *barbotine* representing a peacock amid ivy leaves.

Coll. Levens.

This form does not appear to have been hitherto discovered in Britain. A Roman red ware vase of similar form, and with raised engobe or barbotine ornaments, found on the site of a pottery at Rheinzabern in 1804, and now in the museum at Sèvres, is figured by Brongniart and Riocreux in their *Desc. Meth. du Musée Céramique de Sèvres*, pl. IX., fig. 10.

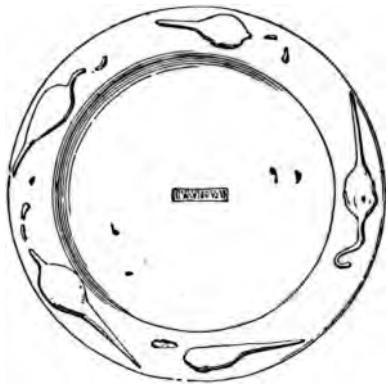
Fig. 82.

E. 206. PATERA of red ware (fig. 83), 8 inches in diameter, with ivy leaves in relief laid on the border in slip or *barbotine* after the patera was turned on the lathe. Potter's mark, VRSVLVS.

Coll. Levens.

By comparing this perfect specimen with the fragments Nos. E. 24, 25, & 26, found in London, it will be observed that the ware, manufacture, and style of ornamentation are similar. A patera of precisely the same kind, found at the Palace of the Luxembourg, Paris, where moulds for the manufacture of ornamented red Roman ware were discovered, is figured in the *Desc. Meth. du Musée Céramique de Sèvres*, pl. IX., figs. 15*a* and *b*.

Fig. 83.



E. 207. SMALL PATERA, of red lustrous ware, 6½ inches diameter. Glaze somewhat crazed in places, both above and beneath, showing its thin character. Potter's mark.

Coll. Levens.

E. 208. SMALL PATERA, of red lustrous ware, 6¾ inches diameter. Potter's mark, LOCIRNI.

Coll. Levens.

E. 209. SHALLOW PATERA, of red lustrous ware, 7 inches diameter, with perpendicular rim and potter's mark.

Coll. Levens.

E. 210. SHALLOW PATERA, of red lustrous ware, 5½ inches diameter, with perpendicular rim; unmarked.

Coll. Levens.

E. 211. ACETABULUM, of red lustrous ware; height, 2½ inches; diameter, 4½ inches. Potter's mark, OF·CAR.

Compare with Roman acetabula found in Britain, Nos. E. 17 & 18.

E. 212. CUP of peculiar shape, in red lustrous ware; height, 2½ inches; diameter, 4½ inches. Potter's mark.

Coll. Levens.

E. 213. SMALL VASE; height, 5¾ inches; greatest diameter, 4½ inches. Body red, almost equal in texture to the finer kinds of the red lustrous ware. Glaze red at base, where it has apparently been plunged into some protecting substance when fired; brown where it has been more exposed to heat. Ornament in the upper portion partly as if milled and marked in a lathe, after which perpendicular lines were impressed by a point.

Coll. Levens.

Compare, as to red base and brown upper portion of the glaze, with No. E. 102 found at Winchester.

E. 214. VASE (fig. 84), 5¾ inches high, 5 inches in greatest diameter. Body white with red glaze and raised scale pattern.

Coll. Levens.

Compare, as regards the imbricated scales or mode in which the pieces in relief partially overlap each other, with No. E. 88, found at Castor.

Fig 84.

E. 215. VASE, 4¾ inches high, 3½ inches in greatest diameter. Body red, but much inferior to the red lustrous ware ; glaze red.

Coll. Levens.

Compare with Nos. E. 94 and E. 142 found at Castor.

E. 216. VASE, 4½ inches high, 3½ inches in greatest diameter. Body red and somewhat coarse; glaze partly red and partly black, according to amount of firing ; scroll ornament in white slip.

Coll. Levens.

E. 217. PATERA, 8½ inches in diameter, resembling in general character some of the Roman red lustrous ware. Body grayish white with glaze black, the whole well fired. Potter's mark, inside a rayed circle, VOCARAP.

Coll. Levens.

E. 218. CUP, 2 inches high, and 4¼ inches in diameter. Body white, light brown outside ; ornamented with imbricated leaves in relief.

Coll. Levens.

E. 219. VASE (fig. 85), 4¼ inches high, and 4¼ inches in greatest diameter. Body whitish, with dark metalloid glaze ; ornamented in slip or barbotine with design of hounds chasing a deer and a hare.

Coll. Levens.

Compare with Nos. E. 152 and 163 and several other pieces found at Castor. This kind of ware may have been manufactured by the Romans in many localities north of the Alps. A fragment representing a hunting scene, from the remains of a Roman pottery at Rheinzabern (*Taberna Rheni*), is figured by Brongniart in his *Traité des Arts Céramiques*, pl. XXIX., fig. 1.

Fig. 85.

E. 220. VASE, of similar ware and general character of ornament ; height, 5¾ inches ; greatest diameter, 5 inches. Design in slip or barbotine, dogs hunting a hare, with ivy leaves similar to those upon the rim of the patera No. E. 206.

Coll. Levens.

E. 221. VASE (fig. 86), 4½ inches in height, and 5¼ inches in greatest diameter. Body gray-white, with black glaze ; ornamented with bosses in slip or barbotine, of similar body to the ware, laid on after turning the piece and before glazing and firing.

Coll. Levens.

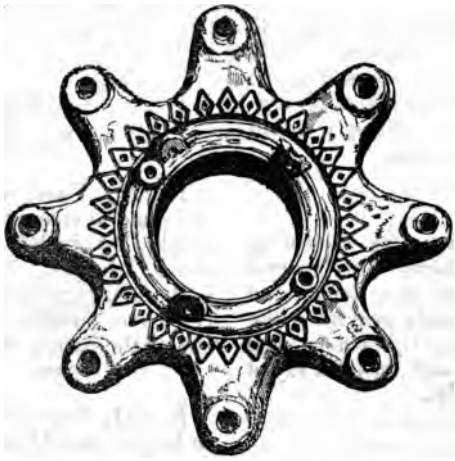
Compare with Nos. E. 158, 159, from Castor, in illustration of the mode of applying the dotted ornamentation.

Fig. 86.

E. 222. LAMP, with eight burners (fig. 87); diameter, $7\frac{1}{2}$ inches; formed for suspension by the aid of three loops placed on an inner circle. Body white with red coating.

Coll. Levens.

Fig. 87.



E. 223. LAMP, oval shape with flat top, having a bust of Jupiter, with an eagle, in bas-relief. Body buff coloured, with brown metalloid glaze.

Aretine Ware.

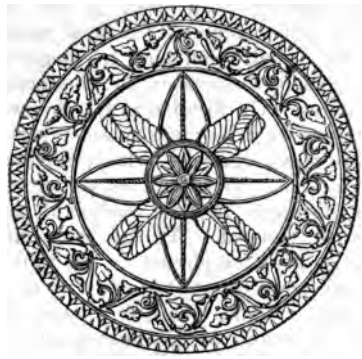
E. 224. HEMISPHERICAL CUP, of Roman red lustrous ware, from Arezzo; height, $2\frac{1}{4}$ inches; diameter, 5 inches. Body red, with dull red coating, not very lustrous. Ornamentation in the higher style of art employed for this kind of ware in Roman Italy; side view exhibited in fig. 88; design of the base in fig. 89.

Coll. Chaffers, No. 1,028.

Aretium, the modern Arezzo, in Tuscany, was famous for its pottery. Pliny speaks of Aretine ware as being of a superior kind (*Nat. Hist., Lib.* XXXV., *cap.* 12). Dr. Fabroni, in his *Storia degli Antichi Vasi fittili Aretini* (Arezzo, 1841), refers to the various ancient and modern authors who have mentioned the ware, and gives illustrations justifying the high character assigned to it.

Fig. 88.

Fig. 89.



ANGLO-SAXON POTTERY.

After the Romans quitted Britain towards the middle of the fifth century, the pottery which they left behind appears to have continued in use among the inhabitants of the country, as is shown by the occurrence of fragments of Roman pottery, including the red lustrous ware, in graves considered to be of early Anglo-Saxon date. There may indeed be some difficulty concerning that kind of pottery which was certainly manufactured by the Romans in Britain, since it may fairly be supposed that potteries would be continued for a time at many of the former Roman sites, and that the forms given to the ware would also for a while be somewhat similar. With the vessels of the red lustrous ware, however, the evidence is more definite, since there is little or no reason to suppose that this ware was manufactured in Britain. Even during the Roman occupation, it was of sufficient value to be mended by rivetting, as testified by many specimens in this collection.

As the Anglo-Saxons used food vessels which were generally made of either metal or wood, especially ash-wood, while their drinking cups were either of horn or of glass, it seems likely that there was little need of pottery for ordinary domestic purposes. Most of the specimens attributed to the Anglo-Saxons are indeed in the form of cinerary urns, commonly made of clay, which exhibits no marks of much preparation before use, and appears to have been generally of such a quality as would not require much care in the selection. This pottery is frequently ornamented with impressed zig-zag and other designs, some by no means deficient in general effect, and corresponding with that which has been termed Germanic and which extended into Gaul.* The pottery itself has rarely been highly fired, and indeed some of it is said to be scarcely more than sun or air dried. The Museum at present (1871) possesses no examples of Anglo-Saxon pottery.

MEDIÆVAL POTTERY USED IN BRITAIN.

[See specimens in Wall Cases I. to V.; top shelf.]

However difficult it may be to feel assured as to the pottery used in Britain much anterior to the Norman Conquest (1066), certain earthen-

* Figures and descriptions of this kind of pottery will be found in Brongniart's Traité des *Arts Céramiques*, pl. XXVI., XXVII.; Wright's Celt, Roman and Saxon; and other works.

ware vessels have been discovered in situations, and under circumstances, which point to their having been used in this country for ordinary domestic wants in the times commonly termed mediæval. The forms of these early examples are usually deficient in elegance, although now and then a specimen may present to some extent the designs of better periods. Mr. Chaffers, in his notes "On Mediæval Earthenware Vessels,"* figures some of these forms taken from Norman manuscripts for comparison with vessels in his own collection, many of which have now passed into the possession of this Museum. Nearly all those specimens which may be fairly considered to represent British mediæval manufacture offer but little that can be termed tasteful. At the same time, ordinary pitchers and cups seem to have been employed at the tables of persons of some importance, and, indeed, were thought worthy of notice in the inventories of even royal households. Thus, Chaffers quotes the following entry in the payments of the executors of Eleanor, queen of Edward I., in the thirteenth century: "Item, Julianæ *La Potere*, pro CCC. *picheriis* viij*s.* *vid.*" And again in the same document we find: "Item Johanni *Le* "*Squeler*,† pro M^le^. et D. discis, tot patellis, tot salseriis, et CCCC. "*chiphis* xlij*s.*"

While it is probable that earthen vessels of common manufacture continued in use in England, even in royal‡ and important noble§ households, down to the fifteenth and sixteenth centuries, such vessels being, for the most part, made in this country, there is yet much reason to suppose that the German and Flemish wares found their way into those households, and that the earthen pots mentioned as "garnished with silver" were often of this better kind of manufacture. Of the German stone-ware, that of Cologne was the most celebrated, and was exported to various countries, including England. It was in high repute in the sixteenth century. The Flemish ware, commonly known as *Grès de Flandres*, was also in great esteem from about 1540 to 1620. It is not improbable, too, that occasionally some pieces of the Nuremberg stone-ware, so famous in its time, may have found its way into England. Most, if not all, of the drinking vessels known as "Gray-beards" were imported from Germany.

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* "Journal of the British Archæological Association," vol. i. p. 24. See also "Marks and Monograms on Pottery and Porcelain," 3rd ed., 1870, p. 26 *et seq.*

† The *squeler* was a seller of *esqueles*, from the French *écuelle*, a porringer, dish, or basin; whence also our word *scullery*.

‡ In the regulations for the household of Edward IV. (latter part of fifteenth century) among the orders for the "picher-house," it is directed that "the butler *for the mouthe* delyverythe nightly, at the buttery barre for the kynge for *all nyght*; with the ale in *new ashen cuppes*, and two other for the watche, which of ryghte should be delyveryd againe at the cupborde in the mornynge, *with the pottes* to serve men of worshippe in the halle." (*Liber Niger*, p. 78.)

§ Mr. Chaffers points to the *Household Book* of the Earl of Northumberland (1512) as showing the common use of earthen pots at the tables of his dependants, adverting to the order that "Whereas *erthyn potts* be bought, that *ledder potts* be bought for them for serving of lyveries and meallys in my lord's hous."

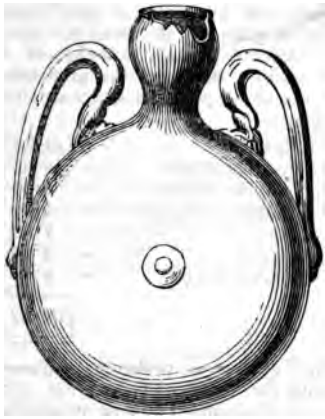
An election feast of the Drapers' Company, in 1522, is quoted, at which earthen pots were used for ale and wine, gilt cups being employed "for red wine and ipocras." So late as 1663, Pepys mentions, in his *Diary*, drinking out of "earthen pitchers and wooden dishes," when sitting at the merchant-strangers' table at a Lord Mayor's feast.

F. 1. PILGRIM'S BOTTLE, with large globular body compressed laterally (fig. 90). Height 10 inches, greatest width 8½ inches. Body cream coloured, unglazed. Found in Cannon Street, 1851.

Coll. Chaffers.

The two sides of this piece have been turned separately and joined together in the plane of the two handles. The form of the vessel is similar to that of a flattened Roman amphora, such as is represented in fig. 62 (p. 74).

Fig. 90.



F. 2. CONICAL JUG, supposed early English manufacture. Height, 11 inches; diameter at base, which is the widest part, 4½ inches. Somewhat coarse cream-coloured body, unglazed; upper part broken. Found in Lad Lane, City, 1843.

Coll. Chaffers.

F. 3. SMALLER CONICAL JUG. Height, 6 inches; diameter at base, 2½ inches. Body finer and more red than that of No. F. 2; unglazed; top broken. Probably of the same general date. Found in Cannon Street, City, 1848.

Coll. Chaffers.

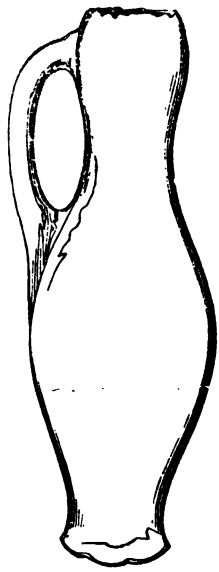
F. 4 & 5. PAIR OF JUGS, Norman shape; coarse brown unglazed body, showing marks of the wheel; base indented. Height of No. F. 4, 10½ inches; greatest diameter, 3 inches; height of No. F. 5, 10 inches; greatest diameter, 3½ inches. Found in the City of London.

Presented by Sir T. W. Holbourne, 1867.

F. 6. EARLY ENGLISH JUG, Norman shape (fig. 91). Height, 16½ inches; greatest diameter, 6½ inches. Body light coloured, partially coated with a yellow glaze. Found in Cannon Street, City, 1853.

Coll. Chaffers.

Fig. 91.



F. 7. SIMILAR JUG, with neck and handle much broken. Found in 1825, under the foundation of an old house in Fleet Street, opposite St. Bride's Church.

Presented by Mrs. J. O. Westwood, 1856.

F. 8. SMALL JUG, Norman shape. Height, 6 inches; greatest diameter, 3 inches. Cream-coloured body exhibiting traces of a reddish-brown glaze, especially on the handle; base indented.

F. 9. SMALL JUG, of similar shape. Height, 5 inches; greatest diameter, 2 inches. Cream-coloured body, partially glazed, and ornamented with three circular medallions containing Scripture subjects in low relief. Found in Cannon Street, City, 1851.

F. 10. JUG (fig. 92). Height, 8 inches; diameter above centre, 4 inches. Cream-coloured body; upper part of outside coated with transparent glaze, with dark green spots. Found at London Wall, May 1844.

Coll. Chaffers.

A vessel of similar form was discovered at a depth of thirteen feet in Friday Street, City, London, associated with pennies of Henry III. and Edward I. Its date may, therefore, be referred to the latter part of the thirteenth century, but the form was probably not limited to this period.

(See *Mr. C. Roach Smith's Catalogue*, p. 114.)

Fig. 92.

F. 11. SMALL JUG, with upper part of outside coated with dark mottled green glaze. Height, 4¾ inches; greatest diameter, 4½ inches. Found in London.

Presented by C. Roach Smith, Esq.

It will be noted that in many of these early vessels the glaze is not applied to the *entire surface*, but is confined to the inside of the lip and to the upper part of the outside where liquid would be most likely to be spilt.

F. 12. WATER PITCHER, supposed early English. Height, 10 inches; greatest diameter, 9 inches. Light reddish-brown body, partially covered on the outside with green glaze. Base ornamented with numerous indentations, apparently punched in by the fingers. Broken at top and on one side. Found in Queen Street, Cheapside, 1842.

Coll. Chaffers.

Upon analysis under Dr. Hofmann, at the chemical laboratory of this Museum, the green glaze on this vessel was found to be a silicate of the protoxide of lead, coloured by a silicate of the protoxides of iron and of copper. Its composition is as follows:—

Silica - - -	43·04
Protoxide of lead -	48·34
Protoxide of iron -	3·31
Protoxide of copper -	1·31
Lime - - -	1·03
Alumina - - -	2·65
Potash and soda -	0·64
	100·32

This glaze was probably produced by dusting the vessels, before firing, with a mixture of powdered galena, or sulphide of lead, and iron and copper scales, when metallic silicates would be formed by the silica derived from the body; while the lime, alumina, and alkalies would also be obtained from the same source.

It is interesting to note that vessels having a similar green glaze have been found at considerable depths below the surface, sometimes associated with Roman relics.

F. 13. SMALL JUG. Height, 4¾ inches; greatest diameter, 3½ inches. Body resembling that of last, and upper part coated with similar green glaze. Found in George Yard, Lombard Street, August 1844.

Coll. Chaffers.

F. 14. JUG. Height, 9 inches; greatest diameter, 3½ inches. Body resembling the last; upper part coated with similar green glaze.

Found in George Yard, Lombard Street.

Coll. Chaffers.

F. 15. SMALL VESSEL. Height, 3½ inches; greatest diameter, 2¾ inches. Cream-coloured body, the upper part coated with mottled green glaze.

F. 16. EARTHENWARE MONEY-BOX, or thrift-box, in shape of a stoppered bottle, with narrow neck and wide body, with vertical slit in the side for introduction of coins. Coated with mottled green glaze. Found in Paternoster Row.

Presented by Sir T. W. Holbourne.

Many allusions to these earthenware depositories for savings may be found in the old writers. Thus Mr. Roach Smith quotes the *Mass of the Microcosme, or a Morall Description of Man*, by H. Browne, 1642, in which the author compares a covetous person to "the *Christmas earthen* "*boxes* of the apprentices, apt to take in "money, but he restores none till he be "broken, like a potter's vessell, into many "shares."

F. 17. PUZZLE JUG. Height, 6½ inches; greatest diameter, 3½ inches. Body, red, coated with green glaze, partially worn off. Dated in relief, 1571.

Presented by Sir T. W. Holbourne.

F. 18. SHORT JUG. Height, 7½ inches; greatest diameter, 5½ inches. Body, red, with pattern in white pipeclay completed by brownish glaze, partially laid on. Base pressed with three fingers in three separate places; upper lip also finger pressed in two places. Found in Cannon Street, City, 1848.

Coll. Chaffers.

F. 19. FRAGMENT of POTTERY, representing an arm, probably part of the decoration of a jug; coated with green glaze. Found in the King's Head Yard, Leadenhall Street, 1847.

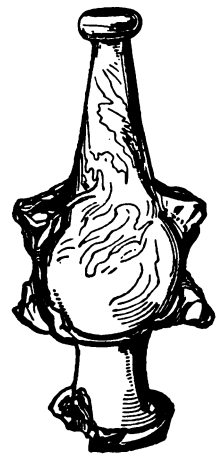
Coll. Chaffers.

F. 20. EARLY ENGLISH COSTREL, (fig. 93). Height 10 inches, breadth 5½ inches, measured across projections, of which there are two on each side in form of lions' heads, and perforated for passage of a cord or strap used in suspending the vessel from the neck in the manner of a "pilgrim's bottle." Body red, glazed in a marble pattern of mixed red and white. Found in London, August 1850.

Coll. Chaffers.

The term *Costrel*, formerly written *Costret*,* is derived from the old French *Costret*, a name given in allusion to the vessel being carried at the *side*. Fig. 93 represents a front view of this bottle, and a side view was given by Mr. Chaffers in the Journal of the Archæological Association, vol. v. p. 33.

Fig. 93.



F. 21. "GRAY-BEARD." Height, 8½ inches; greatest diameter, 4¾ inches. Brown glazed stone-ware, with lion rampant in relief upon the belly, and the usual bearded mask upon the neck.

Presented by Sir T. W. Holbourne.

The "gray-beard" or "long-beard" was a vessel much used in ale-houses in the

* Lansdowne MS. 560, fol. 45.

sixteenth and seventeenth centuries. It was a bottle or jug having upon the neck or beneath the spout a rudely executed mask with a conspicuous beard. Such vessels were known also as *bellarmines*, a name sarcastically given to them in reference to Cardinal Robert Bellarmin, who rendered himself obnoxious by his opposition to the progress of the reformed religion in the Low Countries. Allusions to these jugs are to be found in many poems and plays of the period.

F. 22. CHILD'S RATTLE, in form of a knight's head helmeted. Coarse reddish earthenware body, with coloured glaze.
Coll. Chaffers.

F. 23. SMALL BOTTLE-SHAPED JUG. Height, 3 inches; greatest diameter, 2½ inches. Body cream coloured, completely coated with glaze. Found in Cannon Street, City, 1850.
Coll. Chaffers.

F. 24. BOTTLE-SHAPED JUG. Height, 5½ inches; greatest diameter, 4 inches. Light ash-coloured body, completely covered with a slate-coloured glaze. Found in Cock Lane, Smithfield; April 1844.
Coll. Chaffers.

F. 25. GLOBULAR VASE, on foot, with large mouth and three small necks. Height, 8 inches; greatest diameter of body, 6 inches. Light brown paste, coated with fine cream-coloured glaze. Found in 1842, at a depth of 17 feet below the surface, in an excavation for a sewer in Leman Street, Goodman's Fields, Whitechapel.

F. 26. JUG in coarse brown ware. Height, 9 inches; diameter at widest part, 5½ inches. Found in the early part of the present century, during excavations at Stoke-upon-Trent, Staffordshire.
Presented by W. H. Goss, Esq.

STAFFORDSHIRE POTTERY AND PORCELAIN.

Though the district in Staffordshire known as *The Potteries* has long been famous for the production of ceramic wares, it is somewhat difficult to trace the early history of the district in connexion with this manufacture. It has, indeed, been supposed that its clays were made into pottery by the Roman occupants of that part of Britain; but although this supposition is highly probable, it does not seem to be supported by any positive evidence. Coarse ware appears to have been manufactured in the district certainly as early as the year 1500, if not indeed earlier. According to Dr. Shaw "there exist documents which imply that during "*many centuries* considerable quantities of common culinary articles were "manufactured of red, brown, and mottled pottery, easily made from a "mixture of different clays found in most parts of the district."* It is to the abundance and variety of these clays, combined with the facility of obtaining coal, when coal came to be employed for the manufacture, that we may attribute the early progress of these potteries. In fact the geological character of the district is one highly favourable to the establishment of such manufactures; and though the materials now employed for the earthenware and porcelain so abundantly produced in the district may be derived from other localities, yet its supply of coal and of refractory clays for the firebricks required in the works, the actual

* "History of the Staffordshire Potteries," by Dr. Simeon Shaw, Hanley, 1829, p. 97.

establishment of those works, and the skilled labour at hand, still make it the chief locality for the ceramic manufactures of this country.

Among the productions of the district that of *butter pots* appears to have been undertaken at an early date. In 1661 it was of sufficient importance to attract the attention of Government, the potters of Burslem being then compelled by Act of Parliament to make their pots of such a size as to hold 14 lbs. of butter, and so hard as not to imbibe moisture by which the butter might appear of greater weight than was actually sold.

The clays used in the seventeenth century appear to have all come from the neighbourhood, and for the most part from the coal measures. Fine sand, for admixture with the clays, was obtained from the hilly part of Baddeley Hedge and Mole Cop. Plot in his *History of Staffordshire*, published in 1686, presents us with a valuable statement as to the clays then used, and the method of manufacture adopted at that time, including the mode of glazing.*

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* The following is Plot's account. After mentioning the Amblecot clay as the best, and as used for melting pots at the glasshouses of Amblecot and elsewhere, he continues :—

"Other *potters' clays* for the more common wares, there are at many other places, particularly at *Horsley Heath* in the parish of *Tipton;* in *Monway Field* above mentioned, where there are two sorts gotten, one of a *yellowish* colour mixed with *white*, the other *blewish;* the former stiff and weighty, the other more friable and light, which, mixt together, work better than apart. Of these they make divers sorts of *vessels* at *Wednesbury*, which they paint with *slip*, made of a *reddish* sort of *earth* gotten at *Tipton*. But the greatest *pottery* they have in this *county* is carried on at *Burslem*, near *Newcastle* under *Lyme*, where for making their severall sorts of *pots*, they have as many different sorts of *clay*, which they dig round about the *towne*, all within half a mile's distance, the best being found nearest the *coale*, and are distinguish't by their *colours* and *uses* as followeth :—

"1. *Bottle clay*, of a bright whitish streaked yellow colour.

"2. *Hard fire clay* of a duller whitish colour, and fuller intersperst with a dark yellow, which they use for their *black wares*, being mixt with the

"3. *Red blending clay*, which is of a dirty red colour.

"4. *White clay*, so called it seems, though of a blewish colour, and used for making yellow-colour'd *ware*, because yellow is the *lightest* colour they make any *ware* of.

"All which they call *throwing* clays, because they are of a closer texture, and will work on the *wheel;* which none of the three other *clays* they call *slips*, will any of them doe, being of looser and more friable natures; these mixed with water they make into a consistence thinner than a *syrup*, so that being put into a *bucket* it will run out through a *quill*, this they call *slip*, and is the substance wherewith they *paint* their *wares;* whereof the

"1. Sort is called the *orange slip*, which before it is work't, is of a greyish colour mixt which (*sic*) orange balls, and gives the ware (when annealed) an *orange* colour.

"2. The white *slip*, this before it is work't, is of a dark blewish colour, yet makes the ware yellow, which being the *lightest* colour they make any of, they call it (as they did the *clay* above) the *white slip*.

"3. The *red slip*, made of a dirty reddish clay, which gives *wares* a black colour.

"Neither of which *clays* or *slips* must have any *gravel* or *sand* in them. Upon this account, before it be brought to the *wheel* they prepare the *clay* by steeping it in water in a square pit, till it be of a due consistence; then they bring it to their *beating board*, where with a long *spatula* they beat it till it be well mix't; then being first made into great *squarish* rolls, it is brought to the wageing board, where it is slit into flat thin pieces with a *wire*, and the least stones or gravel pick't out of it. This being done, they *wage* it, *i.e.*, knead or mould it like *bread*, and make it into round *balls* proportionable to their *work*, and then 'tis brought to the wheel and formed as the *workman* sees good.

"When the *potter* has wrought the clay either into *hollow* or *flat ware*, they are set

Up to the year 1680 the glaze employed appears to have been plumbiferous, the ware being coated by a glass formed of silicate of lead. Galena, the ordinary ore of lead (sulphide of lead), obtained from the Derbyshire mines, was dusted in a pulverized state upon the unbaked ware through a coarse cloth, and a silicate formed by its action on the silica of the body of the ware during firing. Glazing by means of salt is said to have been discovered by accident in 1680.*

"Crouch ware" was first made by the Burslem potters in 1690. According to Dr. Shaw, common brick clay and sand from Mole Cop were first used, and subsequently Can marl and this sand, some persons employing with the sand dark gray clay from the coal pits. Salt glaze was used for this ware, some of the principal potters adding a pint of red lead to each bushel of salt.† Around the ovens employed for firing the crouch ware, there was a scaffold on which a fireman stood to cast in the

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abroad to dry in fair weather, but by the fire in foule, turning them as they see occasion. which they call *whaving*. When they are dry they *stouk* them, *i.e.*, put *ears* and *handles* to such *vessels* as require them. These also being dry, they then *slip* or *paint* them with their severall sorts of *slip*, according as they design their *work*, when the first *slip* is dry, laying on the *others* at their leasure, the *orange slip* makeing the ground, and the *white* and *red*, the *paint;* which two colours they break with a wire *brush*, much after the manner they doe when they *marble* paper, and then *cloud* them with a *pensil* when they are pretty dry. After the *vessels* are painted, they *lead* them, with that sort of *lead ore* they call *Smithum*, which is the smallest *ore* of all beaten into dust, finely sifted and strewed upon them, which gives them the *gloss*, but not the colour; all the *colours* being chiefly given by the variety of *slips*, except the *Motley colour*, which is procured by blending the *lead* with *manganese*, by the *workmen* call'd *Magnus*. But when they have a mind to shew the utmost of their *skill* in giving their *wares* a fairer *gloss* than ordinary, they *lead* them then with lead *calcined* into powder, which they also sift fine and strew upon them as before, which not only gives them a higher *gloss*, but goes much further too in their work, than *lead ore* would have done.

"After this is done, they are carried to the *oven*, which is ordinarily above eight foot high, and about six foot wide, of a round copped forme, where they are placed one upon another from the bottom to the top. If they be *ordinary wares* such as *cylindricall butter pots*, &c., that are not *leaded*, they are exposed to the *naked* fire, and so is all their *flat ware* though it be *leaded*, haveing only *parting shards*, *i.e.*, thin bits of old pots put between them, to keep them from *sticking* together. But if they be *leaded hollow wares* they doe not expose them to the *naked* fire, but put them in *shragers*, that is, in course metall'd pots, made of *marle* (not *clay*) of divers formes according as their *wares* require, in which they put commonly three pieces of clay called *Bolbs* for the ware to stand on, to keep it from sticking to the *shragers;* as they put them in the *shragers* to keep them from sticking to one another (which they would certainly otherwise doe by reason of the *leading*) and to preserve them from the vehemence of the *fire*, which else would *melt* them doune, or at least *warp* them. In 24 hours an *oven* of *pots* will be burnt, then they let the *fire* go out by degrees, which in 10 hours more will be perfectly done, and then they draw them for *sale*, which is cheifly to the poor *crate men*, who carry them at their *backs* all over the *countrey*, to whom they reckon them by the piece, *i.e.*, *quart* in *hollow ware*, so that six pottle, or three gallon *bottles* make a *dosen*, and so more or less to a dosen as they are of greater or lesser content. The *flat wares* are also reckon'd by *pieces* and *dosens*, but not (as the *hollow*) according to their *content*, but their different *bredths*."

* The account given is that in 1680 at Stanley Farm, near Mr. Palmer's pottery, at Bagnall, the servant of Mr. Joseph Yates was boiling salt in water to be used in curing pork, and that during her temporary absence the mixture boiled up, and ran over the sides of the earthen pot containing the brine. The earthen pot became red hot, and when cool was found to be glazed. Mr. Palmer availed himself of the accident, glazing common brown ware by means of salt, and in this he was soon followed by other manufacturers. See Shaw's "History of the Staffordshire Potteries," p. 108.

† "History of the Staffordshire Potteries," p. 110.

salt. The vapour arising from the salt glazing of this and other ware is described, about the end of the seventeenth century, as being so considerable as to produce a dense white cloud, sometimes so thick as to cause persons to run against each other in the streets.

At that time the ovens are described "as always adapted to the quantity of "articles made during each week; and no manufacturer of that period fired "more than one oven-full weekly, commencing on the Thursday night, and "finishing about mid-day on Saturday. There were about 22 ovens then "in Burslem and its vicinity, each with eight mouths at equal distances."

Prior to the use of the salt glaze and Bideford clay (first known, as well as the Dorset clays, by the name of *Chester clays*, because imported to that city and afterwards sent to the Staffordshire potteries) the clays used at Burslem and the coals for the twenty-two ovens then in work were taken from the sides of the adjacent lanes.

On the Revolution of 1688, two brothers, John Philip and David Elers, descended from an ancient German family of distinction, accompanied the Prince of Orange to England, and settled in Staffordshire as potters.

Finding at Bradwell Wood, about two miles from Burslem, an ochreous clay well suited to the manufacture of red pottery, they established themselves there and erected a pot-work for the production of their ware, while they hired an establishment for the sale of their products at Dimsdale, also near Burslem. One of their objects seems to have been to manufacture a red ware similar to that of Japan, it being desirable at that time to imitate oriental porcelain and pottery. By careful selection and preparation of their clays, they accomplished this object most successfully, and succeeded in producing a finer kind of ware than any that had previously been made in this country. From the character of the specimens preserved to us, it may be inferred that they were men of considerable taste and skill; an inference corroborated by the testimony of contemporary writers. Thus, Dr. Martin Lister, in a note appended to some letters published in 1693, referring to the soft red iron-ore or hæmatite of Lancashire, alludes to Elers' ware in the following eulogistic terms:—"I "have this to add, that this clay *Hæmatites* is as good, if not better, than "that which is brought from the *East Indies*. Witness the *Tea-Pots* "now to be sold at the potters in the *Poultrey* in *Cheap-side*, which not "only for art, but for beautiful colour too, are far beyond any we have "from *China*. These are made of the *English Hæmatites* in *Stafford-* "*shire*, as I take it, by two *Dutch-men*, incomparable artists."*

In addition to this fine red ware, the Elers manufactured a black body, from a mixture of clay and ironstone, which is said to have been the precursor of Wedgwood's famous "Egyptian ware;" and it is believed that they also produced salt-glazed ware. Great secrecy was maintained in all the details of manufacture; it is said, indeed, that an idiot turned the thrower's-wheel, and that the most ignorant labourers were employed for those parts of the work which were not executed by the Elers themselves. Dr Shaw mentions † that Twyford was supposed to be the first,

* "Extracts of some letters from Mr. John Sturdie, of Lancashire, concerning iron ore; and more particularly of the Hæmatites, wrought into iron at Milthrop Forge in that County. Communicated by Dr. Martin Lister, F.R.S." Philosophical Transactions, vol. xvii., 1693, p. 695. Note on p. 699, dated May 1, 93.

† "History of the Staffordshire Potteries," p. 118.

by pretending carelessness, to have entered the works and found out their processes. Eventually, Mr. Astbury,* by feigning idiocy and obtaining employment in the works, learned their secrets, and made red ware,† being soon followed in this business by other potters. From the competition thus arising, and from annoyance by the other manufacturers of the district, the Elers discontinued their works, and, according to Dr. Shaw, removed in 1710 to Lambeth or Chelsea, where they connected their work with "the glass manufacture established in 1676 by Venetians, under the auspices of the Duke of Buckingham." ‡

Astbury, after establishing his red-ware works, employed Bideford pipeclay,§ at first only for the interior of vessels, but afterwards mixed with Shelton marl for the body, and thus produced a "white stone-ware." The discovery in 1720 of the use of pounded flint as a constituent of the body of earthenware, was the cause of great improvements in the manufacture. Some few years later a further advance was made by the *sun-pans*, or tanks in which the clay was deposited to become fit for use, being superseded by the use of the *slip-kiln*, in which the clays were subjected to artificial heat.‖

About the year 1743 the Burslem manufacturers finding that those of France used plaster-of-Paris moulds for their ware, adopted the same plan. Mr. Ralph Daniel, of Cobridge, visited a porcelain manufactory in France, probably that of Sèvres, learned how the moulds were made, brought over one, and explained the method of making and using them to the Staffordshire potters.

Although the Staffordshire pottery was by no means so deficient, either in tasteful design or in execution, as has often been supposed, anterior to the productions of Wedgwood, there can yet be little doubt that this justly celebrated potter gave a new impulse to the manufactures produced at the potteries. Josiah Wedgwood, the youngest son of Thomas and Mary Wedgwood, was born at Burslem in July 1730.¶ It appears that his

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* Mr. Astbury died in 1743, at the age of 65 years.

† Dr. Shaw mentions that Twyford and Astbury carried on a manufactory together, making red porcelain (?) and white pottery, and employing a salt glaze.

‡ "Chemistry of Pottery," 1837, p. 411.

§ It is stated in Lyson's *Magna Britannia* (Devonshire, p. ccxci., published in 1822) that this "pipeclay was formerly dug in great abundance at Weare Gifford, and in the "parishes of Peter's Merland and Petrockstow. It was sent coastwise, and by canals to "the potteries in Staffordshire. The pits in the last-mentioned places have not been "worked for twenty years." The ware made of this clay and flint was considered liable to crack when highly fired or suddenly heated. ("Hist. of Staff. Potteries," p. 160.)

‖ The following will show the size and method of working the clays in the sun-pans:— "The *Sun Kiln* is formed usually square, 16 to 20 feet in extent each way, and about 18 inches deep, having at one corner a smaller place, deeper, and lined with slabs or flags. The clay, after being brought out of the mine is spread abroad on the adjoining ground, and frequently turned over by the spade during two or three seasons, that it may be well exposed to the action of the atmosphere, (called *weathering*). Into the smaller vat a quantity of clay is thrown, and by a proper tool *blunged* in the water by agitation, till all the heavier particles and small stones sink to the bottom; the fluid mass is next poured into a sieve, thro' which it runs into the largest vat, or sun kiln, until the whole surface is covered to the depth of three or four inches, which is left to be evaporated by solar action. When this is partially accomplished, another layer, and a third and fourth are added, until the mass is from 12 to 18 inches deep; and the whole is then cut out and placed in a damp cellar for use." ("Hist. of the Staff. Potteries," p. 98.)

¶ On Wedgwood's monument in the parish church at Stoke-upon-Trent he is said to

early education did not extend beyond the ordinary course of reading, writing, and arithmetic, taught at a school at Newcastle-under-Lyne; but he was one of those who continue to educate themselves throughout life, and thus acquire deserved advantages and reputation. Soon after his father's death, in 1739, he was removed from school, and at this early age placed as a "thrower" under his brother Thomas, who had succeeded to the Churchyard Works at Burslem, previously occupied by his father. In 1744 Josiah was apprenticed as a potter to his brother for the term of five years. When freed from this service he entered into a partnership with Mr. Harrison, at the Cliff Bank Pottery, but the connexion was of only short duration, and he soon associated himself with Mr. Whieldon, of Fenton, where he manufactured, among other things, a green ware with a remarkably brilliant glaze. This connexion not suiting Wedgwood's views, he returned to Burslem in 1759, and commenced business for himself in part of the Ivy Works belonging to his cousins, and there manufactured small ornamental articles. After removing to the premises known as the Brick-House Works ("Bell Works") he was fortunate enough to obtain the patronage of Queen Charlotte, who so much admired his "cream-ware"—a material which had received great improvements at the hands of Wedgwood—as to desire that it should be called "Queen's Ware." The foundation of his reputation having been thus laid, orders flowed freely to his manufactory at Burslem. Wedgwood was also fortunate in connecting himself commercially with his friend Mr. Thomas Bentley, a merchant of Liverpool, who became his partner, and managed a warehouse in London for the sale of Wedgwood's ornamental goods. Mr. Bentley's classical acquirements and knowledge of art were of the greatest service to Wedgwood; and, by procuring the best models, they were enabled to produce those exquisite cameos, medallions, vases, and other ornamental objects for which the firm became so justly celebrated. Of these objects the finest were produced either in the black body, called Egyptian ware or basaltes, or in the beautiful material known as "jasper ware." The discovery of the jasper was certainly one of Wedgwood's greatest achievements. By the use of either sulphate or carbonate of baryta, or both, he obtained a dense compact paste approaching porcelain in many of its characters, sufficiently hard to receive a good polish, and capable of being delicately and uniformly tinted by the presence of certain metallic oxides. One of Wedgwood's own receipts for the jasper composition, preserved in the Mayer MSS., and published by Miss Meteyard, specifies six parts of cawk (or massive barium sulphate, the mineral known as heavy spar or barytes), three of potter's clay, one of flint, and one fourth of carbonate of baryta.

Josiah Wedgwood died in January 1795, at Etruria, the classic name which he had given to the locality near Newcastle-under-Lyne where he had erected his extensive works. To perpetuate his memory the "Wedgwood Memorial Institute" has recently been erected at Burslem, his native place.*

have been born in *August* 1730, but the register of St John's, Burslem, shows that he was baptised in the previous month.

* For a full account of Wedgwood and his works the visitor may consult "The Life of Josiah Wedgwood," by Eliza Meteyard; "The Wedgwoods: being a Life of Josiah Wedgwood," by Llewellynn Jewitt, F.S.A.; and "Wedgwood: an Address, by the Right Hon. W. E. Gladstone," delivered on laying the foundation stone of the Wedgwood Memorial Institute, Oct. 26, 1863.

The introduction of the Cornish clay or kaolin and china-stone into the Staffordshire potteries was the means of producing a considerable advance in the manufactures of the district. Mr. Jacob Warburton is said to have been the person to whom the locality is most indebted for the introduction of the porcelain manufacture. Associating himself with other potters he formed a company, and in 1777 purchased the patent which had been originally granted to William Cookworthy, and afterwards confirmed to Richard Champion, of Bristol.*

Felspar was first employed in the Staffordshire potteries towards the end of the last century by Mr. Josiah Spode, who also has the credit of having introduced the use of bones in the manufacture of porcelain in 1800.

After the introduction of bones into the body, the manufacture of *soft* porcelain became much extended in the potteries, the raw materials being chiefly imported through Liverpool. *Hard* porcelain was not manufactured until 1850, when Mr. Minton produced excellent ware of this kind.

About twenty five years ago a particular kind of porcelain was invented at the potteries, and termed *Parian* or *statuary biscuit*,† of which very beautiful statuettes and other objects are manufactured by Minton, Copeland, Wedgwood, and many other makers.

Dr. Shaw, writing in 1829, describes the district known as "the Potteries" as being then about 10 miles long, and varying in breadth from three to five miles. He estimated that about 50,000 persons were then employed in the Potteries, in the parishes of Stoke, Burslem, and Wolstanton, including operatives, colliers, and persons engaged on the canal bringing raw materials or carrying away manufactured articles.‡ Eight years afterwards the same writer estimated that 30,000 persons were employed at Stoke-upon-Trent in connexion with the various earthenware and porcelain works. Mr. Arnoux, in 1852, considered that the number of persons more or less engaged in the 133 factories of the potteries was about 60,000.§

The Staffordshire Potteries still continue to afford the great mass of earthenware manufactured in this country, at the same time contributing a large portion of the porcelain produced. In 1852 Mr. Arnoux esti-

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* According to Shaw, Champion at this time sold his patent to a company of Staffordshire potters, consisting of Messrs. S. Hollins, of Shelton; Anthony Keeling, of Tunstall; John Turner, of Lane End; Jacob Warburton, of Hot Lane; William Clowes, of Pert Hill; and Charles Bagnall, of Shelton. (*See* notice of Bristol porcelain, p. 167.)

† Mr. Arnoux points out (Lectures on Ceramic Manufactures, p. 400) that this biscuit differs from porcelain only in the employment of an easily fusible felspar instead of Cornish stone, and that it is fired at a temperature comparatively not high. He also remarks that the fabrication of figures with this biscuit (if such it may be termed) requires great care and skill, the figures being cast in several portions and carefully joined together, while their bulk diminishes by firing to no less than a quarter of the size of the model. The firing itself also requires great care, props being necessary to support the figures, which otherwise would become disturbed. The pleasing tone of the body is said to be due to a small quantity of the silicate of peroxide of iron contained in the felspar or the clays.

‡ "History of the Staffordshire Potteries." Judging from the number now employed, and the extension of the potteries since that time, 50,000 persons would appear to be an over-estimate.

§ "Lectures on Ceramic Manufactures; Lectures on the Results of the Great Exhibition of 1851," vol. ii. p. 380.

mated the yearly value of English pottery manufactured at 2,000,000*l.*; and at that time 84,000,000 pieces, of the value of 1,220,000*l.*, were exported.

The chief mineral substances employed in the Staffordshire Potteries are kaolin or china-clay, from Cornwall and Devon; porcelain-granite or china-stone from the same counties; natural clay from Dorset (Poole clay); flints from the chalk districts; and felspar from Norway and other places.

In 1816 the Staffordshire manufacturers assembled to celebrate the fiftieth anniversary of the opening of the canal between the Trent and the Mersey, a work of the greatest importance to them. A museum was then inaugurated, illustrative of the progress of Staffordshire pottery, and some well-known old works which had been closed for many years were searched for specimens. A selection of these examples, illustrative of the history of pottery manufactured in Staffordshire up to the end of the last century, obtained from Mr. Enoch Wood, to whom the collection belonged, forms the base of the Staffordshire series exhibited in this museum.

Early Staffordshire Pottery.

[Wall Cases I. to V.; upper shelves.]

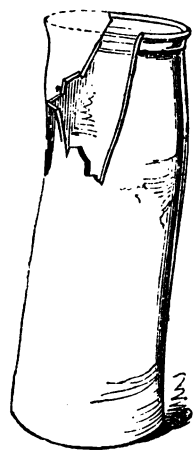
G. 1. BUTTER-POT, of cylindrical form (fig. 94). Height, 14½ inches; diameter, 6½ inches. Body coarse, unglazed; upper part broken.

Coll. Enoch Wood.

Dr. Plot,' in his *Natural History of Staffordshire*, published in 1686, says (p. 108), "The butter they buy by the *pot*, "of a long cylindrical form, made at *Burslem* in this *county* of a certain *size*, so as "not to weigh above *six* pounds at most, "and yet to contain at least 14 pounds of "*butter*, according to an *Act* of *Parliament* "made about 14 or 16 years agoe,* for "regulating the abuses of this *trade*, in "the make of the *pots*, and false packing "of the *butter*." He also mentions that the cheesemongers of London had established a factory at Uttoxeter, and that the parties laid out in the season not less than 500*l.* on market days for butter and cheese. The factors kept a surveyor during the summer, who probed the pots with an instrument called a *butterboare*. It was an object that the pots should be hard, and not so porous as to imbibe much water, which might be counted in the weight for butter.

Dr. Shaw, writing in 1829, remarks that "the common people of the district, "at the present day, call Irish tub-butter "*pot-butter*," and the same use of the term is still retained.

Fig. 94.



* 13 & 14 Charles II. cap. 26., 1661. Although not published until 1686, Plot's work must have been written several years prior to that date.

G. 2. BUTTER-POT. Height, 7½ inches; diameter uncertain, from warping. Body coarse, with long streak of brown glaze of silicate of oxide of lead.

Coll. Enoch Wood.

This piece has apparently been a cast-away from some of the works of the time.

G. 3. BUTTER-POT, with brown glaze. Broken; apparently a cast-away.

Coll. Enoch Wood.

G. 4. DRINKING VESSEL in form of a BEAR clasping its cub. Coarse brown glazed body, roughened with fragments of potsherd sprinkled on the surface.

Coll Enoch Wood.

This vessel has its mouth situated at the base, so that when inverted and filled with liquid it cannot be set down until it is emptied; hence the adage "'ware the bear." Probably the form was imitated from that of similar vessels manufactured in Germany.

G. 5. BELL in coarse red ware, coated with dark brown glaze.

G. 6. SINGLE-HANDLED CUP and COVER. Height, 5½ inches; diameter of rim, 3 inches. Body reddish brown, coated with brilliant chocolate-coloured glaze.

Coll. Enoch Wood.

G. 7. TWO-HANDLED TYG (fig. 95). Height, 11½ inches. Body light brown, covered with dark brown lead glaze; broken. Found in George Yard, Lombard Street, 1844.

Coll. Chaffers.

The *tyg* was a drinking cup having more than a single handle, so that several persons drinking from the vessel, and each using a separate handle, would bring their lips to different parts of the rim. They were largely used in the sixteenth and seventeenth centuries. The double-handled tygs are generally called "parting cups," while those with more than two handles pass under the name of "loving cups." The word *tyg* is derived from the Anglo-Saxon *tygel* or *tigel*,* signifying a tile, or anything made of clay; whence *tygel-wyrhta* denoted a tile-worker or potter, a word that survives in the surname *Tilewright* and its corruptions, still common in Staffordshire.

Fig. 95.

G. 8. TWO-HANDLED TYG. Reddish brown paste, with brilliant chocolate-coloured glaze; broken.

Coll. Enoch Wood.

G. 9. TWO-HANDLED TYG, or broad shallow cup. Height, 3 ins.; diameter of rim, 4 inches.

Coll. Enoch Wood.

It may be noted that in Nos. G. 7 and G. 8 the two handles are placed close together, while in No. G. 9 they are situated on opposite sides of the vessel.

G. 10. THREE-HANDLED TYG. Reddish-brown paste, coated with brilliant dark brown lead glaze. Rim slightly chipped.

Coll. Enoch Wood.

G. 11. COVER OF A TYG, of circular form, 3 inches in diameter. Red body, with dark brown glaze.

Coll. Enoch Wood.

G. 12. THREE-HANDLED TYG, with twisted ornament between each handle. Top broken.

Coll. Enoch Wood.

* Bosworth's Anglo-Saxon Dictionary, *sub voce.*

G. 13. THREE-HANDLED TYG, similar to last piece, but wider. Diameter of base, 3½ inches.
Coll. Enoch Wood.

G. 14. Base of a broad THREE-HANDLED TYG. Diameter, 3¾ inches.
Coll. Enoch Wood.

G. 15. Lower part of a large THREE-HANDLED TYG, with a pale brown speckled glaze. Diameter of base, 4¾ inches.
Coll. Enoch Wood.

G. 16. LARGE TYG, with three handles and spout, ornamented before glazing with bosses stamped with a flower, a spread-eagle, and a swan (fig. 96). Height, 7 inches; diameter of rim, 4¾ inches. Paste light red, with amber-coloured glaze; ornaments and handles chocolate-coloured.
Coll. Bandinel.—Presented by Dr. Page.

Fig. 96.

G. 17. LARGE FOUR-HANDLED TYG. Height, 6½ inches; diameter of rim, 4 inches. Body chocolate coloured, ornamented with rude medallions in pale yellow, embossed with a rose, fleur-de-lis, lion rampant, quatrefoils, the initials IL, and the date 1621.
Coll. Bernal.

G. 18. LARGE DRINKING MUG, with two knobs serving as handles. Height, 7 inches; diameter, 5½ inches. Body dark brown, ornamented in yellow slip with fleur-de-lis, the initials IE, and date 1710.
Burns Collection.

G. 19. DOUBLE-HANDLED POSSET-POT. Body dark brown, ornamented in yellow slip with fleur-de-lis, the initials IE and EC, and date 1681. Two heraldic devices have been laid on in clay, but are for the most part chipped off, a crown and unicorn alone remaining.

G. 20. JUG, of coarse brown paste imperfectly coated with dark glaze. Height, 8 inches. Handle broken. Apparently a castaway.
Coll. Enoch Wood.

G. 21. PORTION OF A PIPE or VESSEL, of same ware and style of glazing as the tygs. Use uncertain. Fractured prior to glazing.
Coll. Enoch Wood.

G. 22. LARGE JUG. Height, 13¼ inches; diameter of mouth, 3½ inches. Body coarse reddish brown, glazed black, ornamented with rude mask and with serrated bands, circles, and crosses; stamped with initials IB.

G. 23. CANDLESTICK (fig. 97), in much the same kind of ware as the tygs. Height, 7 inches; diameter of base, 5½ inches. Ornamented with pattern of dots laid on in white clay dip, or barbotine, on a deep chocolate-coloured ground, and bearing the initials EM and the date of 1649.
Coll. Bandinel.—Presented by Dr. Page.

From a partial removal of the white dip prior to glazing, the 6 in this date has been taken for a 5, and consequently the date supposed to be 1549. A close examination shows the 6. This candlestick is figured in Marryat's "History of Pottery and Porcelain," 3rd edition, p. 186, fig. 112.

Fig. 97.

G. 24. Coarse Dish, 14 inches in diameter. Buff-coloured ground, ornamented with rude form of royal arms in orange and brown slip, laid on in relief. Rim indented.

G. 25. Large Dish, 17½ inches in diameter. Body buff coloured, with ornaments laid on in relief in dark and light brown. In the centre a crowned lion rampant, surrounded by trellised border inscribed with name of maker, THOMAS TOFT, as shown in the annexed sketch (fig. 98).

Coll. Enoch Wood.

A large dish by the same maker is in the Bateman Museum, at Youlgrave, in Derbyshire, and is figured in Jewitt's "Life of Josiah Wedgwood," p. 24. The name of *Ralph Toft* occurs on similar dishes, one of which is in the possession of Mr. C. W. Reynolds, and bears the date 1677.

Fig. 98.

G. 26. to G. 30. Fragments of similar ware, some of which are impressed and embossed.

Coll. Enoch Wood.

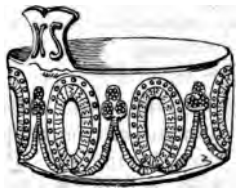
G. 31. Fragment of quadrangular Tile. Body red, with ornaments in pipe clay, glazed.

Coll. Enoch Wood.

G. 32. Piggin (fig. 99). Height, 3½ inches; diameter, 4¾ inches. Body fawn coloured, painted dark brown, and ornamented with indented pattern. Upright handle, bearing initials KS in brown slip.

Coll. Enoch Wood.

Fig. 99.



G. 33. TWO-HANDLED POSSET-POT. Height, 5 inches; diameter of mouth, 6½ inches. Body yellow glazed, ornamented with brown marbled bands, and inscribed around the rim in brown slip, ornamented with yellow dots, IOSHVA HEATH.

Coll. Bernal.

It has been suggested that this is a piece of early Derby pottery from the old Cock-pit Hills works, which were conducted by Messrs. J. and C. Heath.* The inscription is followed by marks which are doubtfully construed as the figures 177.

G. 34. TWO-HANDLED POSSET-POT. Height, 5½ inches, diameter of mouth, 5 inches. Body pale yellow, marbled brown, with stamped ornaments inscribed in compartments around the neck with the initials RF, IG, MC, RD, and date 1682.

G. 35. TWO-HANDLED POSSET-POT, much broken. Body nearly black, with pipeclay ornaments.

Coll. Enoch Wood.

G. 36. POSSET-POT. Height, 3 inches; diameter of mouth, 4½ inches. Cream-coloured ware, painted with dark brown spots and bands, partially glazed.

Coll. Enoch Wood.

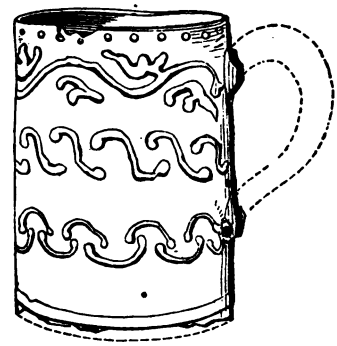
G. 37. POSSET-POT. Height, 5 inches; diameter of mouth, 6½ inches. Body light coloured, with mottled brown glaze; handle wanting.

Coll. Enoch Wood.

G. 38. MUG (fig. 100). Height, 6 inches; diameter, 4½ inches. Yellow ground, ornamented with rude scroll work in brown and white slip; bottom and handle wanting.

Coll. Enoch Wood.

Fig. 100.



G. 39. PINT MUG. Height, 4 inches; diameter of mouth 3½ inches. Brown body washed inside with white pipeclay, and ornamented outside with same substance in marbled bands.

Coll. Enoch Wood.

Mr. A. W. Franks mentions (MS.) that a similar mug, belonging to the Rev. T. Staniforth, of Storrs, Windermere, bears the date of 1694.

G. 40. MUG. Height, 3 inches; diameter of mouth, 2¾ inches. Body fawn colour, painted with dark brown, forming a pattern.

Coll. Enoch Wood.

G. 41. MUG, of same size as last. Body fawn colour, painted dark brown so as to leave the body exposed in circular spots.

Coll. Enoch Wood.

G. 42. FRAGMENT of a MUG. Body fawn colour, with vertical bands of marble pattern in dark brown.

Coll. Enoch Wood.

G. 43. MUG, of cylindrical form. Height, 3¾ inches; diameter, 2¾ inches. Ornamented with double set of turned bands, and coated with brown wavy glaze.

Coll. Enoch Wood.

* "The Pottery and Porcelain of Derbyshire," by A. Wallis and W. Bembrose, jun., 1870.

G. 44. FRAGMENT of a MUG, similar to last, but smaller.
Coll. Enoch Wood.

G. 45. MUG, with rounded base. Height, 2½ inches; diameter of mouth, 2½ inches. Body light coloured, mottled with brown glaze, and ornamented with three ribs round the body; handle wanting.
Coll. Enoch Wood.

G. 46. MUG, similar to last. Height, 2¾ inches; diameter of mouth, 2½ inches. Glaze speckled.
Coll. Enoch Wood.

G. 47. MUG, similar to last. Height, 2½ inches; diameter of mouth, 2½ inches. Body stoneware, with lower part gray and upper part a full brown; rim chipped.
Coll. Enoch Wood.

G. 48. CUP, without handle, pressed in a mould. Light red compact body, unglazed, ornamented with relief scroll-work and fluting, the rim and much of the ornament being decorated with white Devon clay.
Coll. Enoch Wood.

G. 49. CUP and SAUCER, similar to last, but glazed, the body thus becoming chocolate coloured, and the clay ornaments fawn coloured.
Coll. Enoch Wood.

G. 50. QUART MUG. Height, 5¼ inches; diameter of mouth, 4½ inches. Paste red, ornamented in relief in Devon clay, with the Royal Arms, a stag, lion, &c. Glazed, the body becoming chocolate coloured, and the clay ornaments fawn coloured. Handle wanting.
Coll. Enoch Wood.

G. 51. COFFEE-POT. Height, 5½ inches; diameter of mouth, 2¼ inches, and of base, 4¼ inches. Red body glazed, with yellow clay ornaments in relief, including a lion rampant, crown, flowers, birds, &c. Cover wanting.

G. 52. SMALL TEA-POT, pressed in a mould. Height, 4½ inches. Red body, glazed, embossed with figures of four birds in as many compartments. Cover wanting.
Coll. Enoch Wood.

G. 53. DRINKING CUP. Height, 5⅛ inches; diameter of mouth, 3¾ inches, and of base, 2½ inches. Ground, chocolate coloured, sprinkled with fragments of yellow clay, and glazed. Broken in two pieces, and rivetted.

G. 54. FLAT FLASK, with two ears pierced for passage of a suspending string. Diameter of body, 5½ inches. Ornamented with brown and yellow marbling.
Coll. Baudinel.—Presented by Dr. Page.

G. 55. BASIN. Height, 3½ inches; diameter of mouth, 8¼ inches. Body yellow, marbled red and brown.

Elers' Ware.

[Wall Cases IV. and V.]

A reference to the Brothers Elers, the Dutch potters who manufactured this ware, will be found in the historical notice of the Staffordshire potteries (p. 95). The specimens here exhibited serve to show the character of the celebrated red ware which they produced in imitation of Japanese porcelain. The paste is hard and possesses a fine colour and close texture, while the manufactured articles are characterized by elegance of outline and design, and are often decorated with floral ornaments in sharp relief, produced by pressing in copper moulds. The period of manufacture extended from 1688 to 1710.

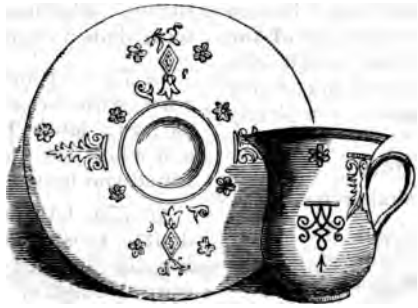
G. 56. DRINKING CUP, in plain red ware. Height, 3¼ inches; diameter of mouth, 3 inches. Conical form; no handle.

G. 57. TEA-CUP. Height, 2½ inches; diameter of rim, 2¾ inches. Surface plain.

G. 58. COFFEE-CUP, (fig. 101). Height, 2½ inches; diameter of rim, 2½ inches. Surface ornamented with pressed pattern in sharp relief.

G. 59. SAUCER, in similar ware (fig. 102). Diameter, 4½ inches.

Figs. 101 and 102.



G. 60. MUG. Height, 2¾ inches; diameter 2¼ inches; cylindrical form, with handle, and ornamented in relief.

G. 61. MUG, similar to last. Height, 2½ inches; diameter, 2 inches.

G. 62. PIGGIN, or small cup with rising handle, (fig. 103). Height, 2 inches; diameter of rim, 2½ inches. Surface ornamented with horizontal bands turned on a lathe.

G. 63. PIGGIN, similar to last, but handle broken off.

G. 64. SMALL LADLE, very neatly formed (fig. 104). Diameter of bowl, 1¼ inch; length of handle, 3½ inches.

Figs. 103 and 104.

G. 65. TEA-POT and COVER. Height, 4¼ inches; diameter of body, 3¾ inches. Ornamented with Chinese floral pattern in relief, and stamped on the bottom with circular mark surrounding figure of a stag.

This piece, which is of a lighter colour than most of the other specimens, is figured in Miss Meteyard's *Life of Josiah Wedgwood*, vol. i. p. 139.

G. 66. SMALL TEA-POT and COVER. Height, 3 inches; diameter of body, 3 inches. Ornamented in relief, and stamped on the bottom with a square mark in imitation of that of Chinese or Japanese ware.

G. 67. SMALL TEA-POT, similar to last, with same mark; cover wanting.

G. 68. SMALL TEA-POT, similar to last, but without mark; the paste is of a lighter red colour and its surface less lustrous than that of the preceding pieces.

All the specimens of Elers' ware from Coll. Enoch Wood.

Agate Ware, &c.

[Wall Case IV.]

The paste of this ware was produced by mixing together clays of various colours, so as to form an irregularly variegated body in imitation of agate or of marble. Some of Josiah Wedgwood's early efforts were directed to the manufacture of knife handles in agate ware.

G. 69. FOUR KNIFE HAFTS of agate ware. One of them is broken across to show the character of the variegated paste, from which it is seen that the pattern is not merely superficial, but passes completely through the paste.

G. 70. BUTTER BOAT, mounted on three claws, in similar ware.

G. 71. TEA-POT and COVER, in similar ware. Height, 3 inches; diameter of body, 4 inches.

G. 72. TEAPOT and COVER, similar to last; rim chipped.

G. 73. COFFEE-POT, similar ware. Height, 5½ inches; diameter of mouth, 2½ inches; of base, 4 inches. Octagonal form; cover wanting.

G. 74. SAUCER. Diameter, 7 inches. Marbled surface.

Nos. G. 69 to 74 from Coll. Enoch Wood.

G. 75. PLATE. Diameter, 8½ inches. Coarse brown ware, coated with thick marbled glaze.

This piece is much coarser, and probably much older, than the other specimens.

G. 76. PLATE. Diameter, 8¾ inches. Marbled in diamond pattern, shaped edge.

G. 77. CUP and SAUCER, in cream ware with broad band of marble pattern; lower part fluted; brown and white chequer pattern running round rim between two gilt lines.

G. 77*a*. CUP in similar ware, with double twisted handle terminating in gilt floriated ornament; broad central band of chocolate-coloured ground, with flowers in oil-gilding; border of brown and white chequer pattern round the rim; lower part of body fluted.

Presented by Prof. A. H. Church, M.A., 1870.

Although this specimen does not present any agate or marbled pattern, it is placed here on account of its general resemblance to G. 77. Compare as to handle with many pieces of Leeds ware.

G. 78. COFFEE-CUP, marbled in chocolate and blue.

Coll. Bandinel.

Tortoise-shell Ware.

[Wall Case V.]

The surface of this ware is covered with a variegated glaze, either of a rich brown or of a mottled purple and green colour. Thomas Wheildon was famous for the production of such "tortoise-shell ware," and it was also manufactured by Josiah Wedgwood during his partnership with Harrison and with Wheildon. Many of these pieces may be referred to about the year 1750.

G. 79. COFFEE-POT and COVER, in tortoise-shell ware. Height, 7½ inches; diameter of mouth, 2¾ inches, of base, 4 inches. Surface decorated *with floral* ornaments in low relief.

The mottled purple and green glaze on this ware is obtained by the use of manganese ore and galena.

G. 80. TEA-POT and COVER, in similar ware (fig. 105). Height, 6

Fig. 105.

inches ; diameter of body, 5 inches. Open ornamental work outside.

G. 81. OCTAGONAL PLATE. Diameter, 8¾ inches. Circular centre, ribbed edge.

A similar plate in tortoise-shell ware is figured in Jewitt's *Life of Josiah Wedgwood*, p. 118.

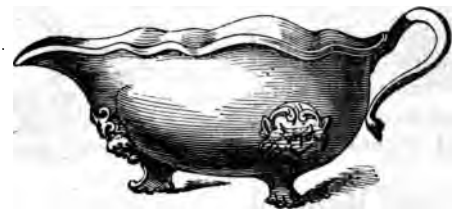
G. 82. HALF of an OCTAGONAL DISH, similar to last. Diameter, 11¾ inches.

G. 83. CIRCULAR DISH, in brown tortoise-shell ware. Diameter, 9 inches.

According to Enoch Wood's catalogue, this piece is said to have been manufactured by Wedgwood.

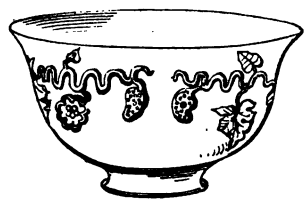
G. 84. BUTTER BOAT, in similar brown ware (fig. 106).

Fig. 106.



G. 85. BOWL. Height, 3 inches; diameter of rim, 5¾ inches. Brown tortoise-shell ware ornamented with flowers in relief and gilt (fig. 107).

Fig. 107.



G. 86. PLATE. Diameter, 9¼ inches. Mottled pattern divided into segments by brown bands radiating from centre; border ornamented in relief, and edge shaped.

G. 79 to 86 from Coll. Enoch Wood.

According to Mr. Joseph Mayer ("History of the Art of Pottery in Liverpool," p. 25), tortoise-shell ware extremely similar in character to some of these Staffordshire specimens was manufactured at Liverpool about the year 1760 by Mr. Philip Christian.

Drab-coloured Salt-glazed Ware.

[Wall Cases, I., II., III.]

This ware was manufactured, in the early part of the eighteenth century, from a mixture of Devon clay and Mole Cop sand. The drab-coloured surface is decorated in relief with white ornaments in Devon clay, and it will be noticed that these ornaments often bear a striking resemblance to the pressed decoration on Elers' ware. Many of the pieces exhibit marks of having been turned on the lathe before being ornamented. The surface is salt glazed.

G. 87. LARGE TEA-POT and COVER. Height, 7 inches; greatest diameter of body, 7 inches. Drab-coloured ware, white inside, with white crab-stock handle and spout; outside decorated in relief with conventional floral ornaments in white.

G. 88. SMALLER TEA-POT, similar to last. Height, $4\frac{1}{2}$ inches; diameter of body, 6 inches. Relief ornaments in diamond-shaped compartments; handle wanting.

G. 89. and G. 90. PAIR of FLOWER POTS and STANDS. Height, $4\frac{1}{2}$ inches; diameter of rim of pot, $5\frac{3}{4}$ inches. Drab coloured both inside and outside, with applied white ornament.

G. 91. QUART JUG. Height, 7 inches. Drab ware with inside white, and relief ornaments in white.

G. 92. SMALLER JUG, similar to last. Height, $5\frac{1}{2}$ inches. Crab-stock handle.

G. 93. CREAM JUG. Height, $3\frac{1}{2}$ inches. Drab body, ornamented with vine in white relief.

G. 94. BASIN. Height, 3 inches; diameter of mouth, $5\frac{1}{4}$ inches. Inside white; outside drab with white vine pattern.

G. 95. SMALL BASIN, similar to last. Height, $2\frac{1}{4}$ inches; diameter of mouth, 4 inches.

G. 96. COFFEE-CUP. Height, $2\frac{1}{2}$ inches; diameter of rim, $2\frac{1}{4}$ inches. Drab body with white scroll ornament, stars, &c.

G. 97. SAUCER (fig. 108). Diameter, 4 inches. Inside white, outside drab with vine pattern in white relief.

Fig. 108.

G. 98. SAUCER, similar to last. Broken.

G. 99. SAUCER. Diameter, $4\frac{3}{4}$ inches. Drab body with vine pattern in white relief on inside.

G. 87 to 99 from Coll. Enoch Wood.

White and Cream-coloured Salt-glazed Ware.

[Wall Cases I. to V.; lower shelves.]

Some of this ware was shaped by pressing the moist paste in metal moulds, the ornament thus possessing very sharp relief, whilst other pieces were "cast" in moulds of plaster of Paris, the slip being introduced so as to form at first a thin layer, lining the mould, and this operation being repeated until a sufficiently thick body was obtained. Many of the stone-ware models from which the plaster moulds were taken are here exhibited, together with one of the metal moulds, now become extremely rare.

The paste of some of this ware is so fine as almost to resemble a porcelain. Indeed, Professor Church observes that, had a little more alkali entered into the composition of the better and whiter specimens, it would have been in reality a kind of hard porcelain.* The surface is coated by a glaze formed upon the ware by the action of the vapour of common salt in the manner previously described (p. 52). One of the saggers in which this salt-glazed ware was fired is exhibited in the collection.

* "Catalogue of the Specimens of Old English and other Pottery in the Collection of *Arthur Herbert Church*." Cirencester, 1870, p. 8.

It is believed that the period of manufacture of this ware extended from 1690 to 1780. It is frequently referred to by the inappropriate name of *Elizabethan ware*, while the earlier specimens have passed under the designation of *Crouch ware*.

G. 100. OLD SAGGER, employed in firing the early Staffordshire salt-glazed ware. Diameter, 15 inches; height, 8 inches. Found built into an old wall in the neighbourhood of Hanley, Staffordshire.

The sides of this sagger exhibit four perforations through which the vapour of common salt gained access to the enclosed pieces of ware, and formed a vitreous silicate of soda by attacking the silica of the paste. The sagger has itself become irregularly coated with a similar glaze. On account of its size this specimen is placed on the bottom shelf at the right-hand corner of Case V.

G. 101. MODEL, in thick stone-ware, from which a plaster-of-Paris mould would be taken for the body of an eight-sided tea-pot (fig. 109).

The eight compartments are ornamented with bas-reliefs, apparently from a German pattern. The designs include a tea party, hunting scene, heraldic devices, double-headed eagle, Cupid on a lion, &c. This and the following pieces are from the collection of the late Mr. Enoch Wood.

Fig. 109.

G. 102. MODEL, in similar ware, from which a mould would be taken for body of a tea-pot resembling No. G. 117.

G. 103. MODEL, in similar ware, for a square-sided tea-pot, resembling No. G. 121.

G. 104. MODEL, in similar ware, for body of a jug (fig. 110), resembling No. G. 115.

Fig. 110.

G. 105. MODEL, in similar ware, for large soup tureen, ornamented in relief with basket-work and scroll and diaper patterns.

G. 106. MODEL of cover to a similar tureen.

G. 107. MODEL of cover to a similar but smaller tureen.

G. 108. } MODELS of a butter-
G. 109. } boat resembling No. G. 141, with scroll pattern in relief.

G. 110. MODEL of a sauce-boat with fret pattern in relief.

G. 111. MODEL of cover for tea-pot, in unglazed ware; circular shape, divided into eight segments containing subjects resembling those on No. G. 101.

G. 112. MOULD, in unglazed ware, of a heart-shaped cover for tea-pot, ornamented with incised scroll pattern.

G. 113. SEAU, in salt-glazed cream-coloured ware (fig. 111). Height, 8 inches; diameter, 7 inches. Body ribbed vertically, and ornamented in low relief with flowers and fern-fronds; two side-handles in form of animal heads; rim chipped.

Fig. 111.

G. 114. SUCRIER, in similar ware. Heignt, 3 inches; diameter, 4 inches. Surface moulded with simple scroll pattern.

G. 115. CREAM JUG, in similar ware. Height, $4\frac{3}{4}$ inches; diameter of rim, $2\frac{1}{4}$ inches. Surface ornamented in relief with pecten pattern. Compare No. G. 104.

G. 116. TEA-POT and COVER, with rustic handle and spout. Height, 5 inches; diameter of body, $4\frac{1}{2}$ inches. Surface ornamented in relief with vine.

G. 117. TEA-POT and COVER. Height, $6\frac{1}{2}$ inches. Body ornamented with shell pattern. Compare No. G. 102.

G. 118. TEA-POT and COVER (fig. 112). Height, 5 inches. Body four-lobed, with shell pattern and oak leaves in relief.

Fig. 112.

G. 119. } TWO TEA-POTS and
G. 120. } COVERS. Height, $5\frac{1}{2}$ inches. Body heart-shaped in transverse section, with vine pattern in relief.

G. 121. TEA-POT. Height, $4\frac{1}{2}$ inches. Body diamond-shaped in section, each of the square sides containing a shell in centre, surrounded by a fret border enriched with blue; spout in form of an animal's neck and head; handle with ornament; cover wanting.

G. 122 } TWO SMALL TEA-POTS
G. 123. } and COVERS (fig. 113). Height, 4 inches; greatest diameter of body, 3 inches. Body impressed with floral ornament.

Fig. 113.

G. 124. TEA-POT and COVER. Height, 5 inches. Body square, in form of a three-storied building, with royal arms over gate; handle in form of an animal's head.

G. 125. TEA-POT and COVER. Height, 5 inches; diameter of body, 4½ inches. Body spheroidal, embossed with floral and shell pattern.

G. 126. TEA-POT and COVER. Height, 4½ inches; diameter of body, 5 inches. Body globular, embossed with vine pattern, gilt.

G. 127. TEA-POT and COVER. Height, 3½ inches. Painted with Chinese subject in brilliant enamel colours.

G. 128. SMALL TEA-POT. Height, 3½ inches; diameter of body, 3 inches. Lower half of body fluted, upper half plain; cover wanting.

G. 129. TEA-POT. Height, 4 inches; diameter of body, 4½ inches. Ornamented with simple scroll pattern in relief.

G. 130. LARGE OVAL SOUP-TUREEN. Height, 5¼ inches; greatest diameter, 9 inches. Body impressed with simple pattern; foot chipped.

G. 131. BASIN. Height, 3¼ inches; diameter of rim, 5¾ inches. Body fluted in same style as No. G. 128.

G. 132. } TWO BASINS. Height,
G. 133. } 3 inches; diameter of rim, 5½ inches. Embossed with shell pattern.

G. 134. BOTTLE-SHAPED VASE, in salt-glazed ware. Height, 8 inches. Body plain.
Presented by Leo Martin, Esq.

G. 135. CORNUCOPIA, in similar ware. Body spirally twisted, with border of vine round the mouth.

G. 136. DOUBLE-HANDLED BUTTER-BOAT (fig. 114). Shaped edge; body ornamented with fluting and fret pattern.

Fig. 114.

G. 137. } TWO SAUCE-BOATS, or-
G. 138. } namented with embossed floral pattern.

G. 139. Smaller SAUCE-BOAT, similar to last.

G. 140. SAUCE-BOAT, with simple embossed pattern on body, and scroll-work under spout.

G. 141. SAUCE-BOAT, with embossed scroll-work and diaper pattern. Compare model No. G. 108.

G. 142. SAUCE-BOAT, with embossed scroll-work and diaper and basket pattern. Compare model No. G. 109.

G. 143. SAUCE-BOAT (fig. 115). Form apparently taken from silver plate. Surface embossed with figures of a goat, bird, flowers, &c.

Fig. 115.

G. 144. } TWO SMALL SUGAR BA-
G. 145. } SINS. Height, 3 inches; diameter, 4 inches. Surface divided into eight compartments ornamented in relief with subjects similar to those on No. G. 101.

G. 146 } FOUR COFFEE-CUPS, em-
to } bossed in similar style
G. 149. } to last piece.

G. 150. COFFEE-CUP. Lower part fluted, the upper part with simple scroll pattern.

G. 151. COFFEE-CUP, embossed with pattern similar to that on No. G. 121.

G. 152. COFFEE-CUP, with fluted body.

G. 153. TEA-CUP, with fluted body. This cup, like the following pieces, has the form of a small bowl, and is not furnished with a handle.

G. 154. TEA-CUP, large size, with body strongly fluted.

G. 155. TEA-CUP, with pressed pattern similar to that on No. G. 101.

G. 156. TEA-CUP, with pressed pattern resembling that on No. G. 121; a scroll border runs round the rim.

G. 157. SMALL TEA-CUP, similar style to last, with incised zig-zag border enriched with blue colour.

G. 158. SMALL TEA-CUP, similar style to last, with incised scroll border coloured blue.

G. 159. } THREE BLANCMANGE
to } MOULDS, in salt-glazed
G. 161. } ware. Small star-shaped cups.

G. 162. BLANCMANGE MOULD, in similar ware. Oval shape, fluted.

G. 163. BLANCMANGE MOULD, similar to last, but larger.

G. 164. PICKLE TRAY. A small shallow oval tray with shaped edge, plain inside.

G. 165. } PICKLE TRAYS, of simi-
G. 166. } lar shape to last; the inside ornamented with scroll pattern in sharp relief, produced by pressing in metal moulds.

G. 167. IRON MOULD and COPPER CORE, in which Nos. G. 165 and G. 166 have been "cast." Date *circa* 1745.

G. 168. PICKLE DISH, in form of a shallow four-sided dish, ornamented with scroll pattern impressed in sharp relief.

G. 169. KNIFE-HAFT, with embossed ornament.

Presented by Prof. A. H. Church, M.A., 1870.

G. 170. } TWO PLATES, octa-
G. 171. } gonal. Diameter, $8\frac{3}{4}$ inches. Circular centre plain; border pressed.

G. 172. PLATE, circular. Diameter, 9 inches. Shaped edge; border pressed in similar style to last.

G. 173. PLATE, circular. Diameter, 9 inches. Body coarse; pressed border with compartments, containing in relief a military trophy, the Prussian eagle, portrait of Frederick the Great, and inscrip-

tion, "Success to the King of Prussia and his Forces."
Coll. Bandinel.

G. 174. DISH, circular. Diameter, 9 inches. Body plain, divided into six compartments; edge ribbed.

G. 175. DISH, circular. Diameter, 11½ inches. Centre plain; border pressed with basket and diaper pattern; edge shaped.

G. 176. DISH, oval. Longer diameter, 11½ inches; shorter diameter, 9¾ inches. Body covered with embossed scroll-work and diaper and basket pattern.

G. 177. DISH, oval. Diameters, 9 inches and 7½ inches. Centre plain; border pressed.

G. 178. DISH, circular. Diameter, 14¾ inches. Centre plain; border pressed with scroll-work, basket and diaper pattern, &c.

G. 179. DISH, oval. Diameters, 14 inches and 10¾ inches. Body quite plain; edge ribbed.

G. 180. } TWO DISHES, oval.
G. 181. } Same size as last Centre plain; border pressed.

G. 182. DISH, oval. Diameters, 12 inches and 9¾ inches. Surface covered with embossed ornament, scroll-work, diaper and basket patterns.

G. 183. DISH, circular. Diameter, 12 inches. Ornamented in similar style to last.

G. 184. OVAL DOUBLE-HANDLED TRAY, with perforated centre and border; pressed scroll-work running round the centre, and basket-work round the border.

G. 185. PLATE, circular. Diameter, 9 inches. Salt-glazed ware with pressed border ornamented with diaper pattern. The centre shows an early example of printing in red upon the glaze from an engraving. Design, lion and fox (fig. 116).

Fig. 116.

G. 186. PLATE, similar to last. Centre showing example of early transfer-printing in red. Design, girl offering grapes to a lad.

These plates were probably printed by Sadler and Green of Liverpool.
Nos. G. 101 to G. 186 (except G. 134, G. 169, and G. 173) from Coll. Enoch Wood.

Miscellaneous pieces of old Staffordshire Ware.

G. 187. BOWL. Height, 4 inches, diameter, 9¼ inches. Body brown; inside, cream-coloured, washed with slip of Devon clay, and ornamented with rudely incised figures of lions and fishes, scratched through with a style so as to expose the body, and then glazed. Dated 1755.
Coll. Enoch Wood.

G. 188. PLATE, in white glazed ware. Diameter, 9¾ inches. Painted beneath glaze with cobalt blue, in the manner of some Delft ware; design, male figure standing on one leg, with landscape in Chinese style; edge pressed and touched with blue.
Coll. Enoch Wood.

G. 189. CANDLESTICK, in white glazed ware. Height, 11 inches. Ornamented in relief with scroll-work and festoons tinted in blue.
Coll. Enoch Wood.

G. 190. TEA-POT and COVER, in similar style. Ornamented in relief with classic urns, and scroll-work and festoons painted deep blue; knob of cover wanting.

G. 191. QUART JUG, after a Dutch pattern, in white glazed ware, with mask under spout, and handle in form of a figure holding a bottle; painted in blue with Chinese scenes.
Coll. Enoch Wood.

G. 192. STAND for a BASKET, in white glazed ware, with flowers in blue under the glaze.
Coll. Enoch Wood.

G. 193. PUZZLE JUG. Height, 9 inches. White glazed ware; centre perforated with circular opening covered with star-shaped grating, through which is seen the figure of a boy seated on a cask and holding a bunch of grapes (fig. 117).
Coll Enoch Wood.

Fig. 117.

G. 194. BEAKER. Height, 4¾ inches. Cream-coloured ware, rudely painted on biscuit in brown and green; rim broken. Date about 1758.

G. 195. TEA CADDY, in cream-coloured ware. Shape four-sided, with open work on solid sides; edges coloured green.
Coll. Enoch Wood.

G. 195*a*. TEA-POT and COVER, in "cauliflower ware;" probably manufactured by Whieldon.

G. 195*b*. BASIN, in cream-coloured ware, ornamented in relief with fruit tinted green, purple, and yellow; marked in purple under the glaze with a cross.

G. 196. CREAM JUG. Height, 4½ inches. Cream-coloured ware; ribbed body, ornamented in relief with fruit coloured green and purple.
Coll. Enoch Wood.

G. 197. SMALL CREAM-JUG. Height, 3 inches. Cream-coloured ware, edged in gold, and painted in red and green with fishing scene, &c.

G. 198. COFFEE-CUP, in cream-coloured ware, coarsely painted with flowers in red.

G. 199. TEA-POT and COVER. Height, 7 inches. Body globular, mounted on foot, and painted in colours with a ship and flowers, and inscribed "I. B. 1778."

G. 200. TEA-POT and COVER. Height, 5½ inches. Cream-coloured ware, rudely painted with cherries in red and black.

G. 201. TEA-POT and COVER. Height, 6 inches. Cream-coloured ware, rudely painted in colours with female figure in costume of the period on one side, and with flowers on the other; knob moulded in form of flower and gilt.

G. 202. COVER of TEA-POT, ornamented with figures of cherubs in black transfer-printing, coarsely painted in colours by Mensor, a Frenchman, about 1768; edge gilt.

G. 203. TEA-POT and COVER. Height, 6 inches. Cream-coloured ware ornamented in early transfer-printing in black outline, painted in colours in same style as last. Design, on one side Aurora in her chariot; and on the other, the Eastern Hemisphere with sun and moon; on the cover, floating cherubs.

G. 204. ORNAMENT, representing a pigeon in her nest with a young one; painted in proper colours.

G. 205. SMALL CUP, supported on a leaf, with rustic handle. Cream-coloured ware, painted.

G. 206. BUST OF MADONNA (fig. 118), probably from an Italian model. Height, 17 inches. Painted in proper colours.

Fig. 118.

G. 207. BUST OF SHAKESPEARE (fig. 119). Height, 9½ inches. Coloured in similar style to last.
Coll. Enoch Wood.

Fig. 119.

G. 208. BUST OF SHAKESPEARE, in black "Egyptian ware," from a similar mould to the last.
Coll. Enoch Wood.

G. 209. SAUCE-BOAT, fruit-shaped, mounted on a leaf, with rustic handles; plain cream-coloured ware.
Coll. Enoch Wood.

G. 210. BLANCMANGE MOULD, in form of a small eight-rayed star; cream-coloured ware.

G. 211. SMALL CUP, in plain cream-coloured ware; body fluted.

G. 212. CUP and SAUCER, in cream-coloured ware, with example of early transfer-printing in black. Design, a garden scene with harlequin and lady.

The printing on this and the following pieces was probably executed by Sadler and Green of Liverpool.

G. 213. LARGE SOUP TUREEN and COVER on STAND, in cream-coloured ware, ornamented with figures of peacocks in early black transfer-printing; handles twisted and terminated in floriated ornaments; border pressed.

G. 214. STAND for tureen similar to last, in plain cream-coloured ware with pressed sides.

G. 215. PLATE, circular. Diameter, 10½ inches. Cream-coloured ware with peacocks in black transfer-printing, similar to No. G. 213.

G. 216. SMALL OVAL DISH, with perforated border, in cream-coloured ware, ornamented in black transfer-printing with peacocks similar to last piece.

G. 217. TEA-POT, in cream-coloured ware, ornamented in black transfer-printing with Watteau subject; pale impression; cover wanting.

G. 218. TEA-POT and COVER in cream-coloured ware, ornamented in red transfer-printing; on one side masonic emblems and inscription, "Deum time et Regem honora;" on the other side heraldic devices inscribed "Amor, Honor, et Justitia" and "Sit lux et Lux fuit."

Wedgwood Ware.

[Wall Cases VI. to X.; upper shelves.]

G. 219. PUZZLE JUG (fig. 120). Height, 5 inches. Coarse brown body, coated with green lead glaze. Neck pierced; handle enclosing a channel leading from the bottom of the vessel to the rim, where it opens in three spouts. Round the body an incised inscription, "JOHN WEDG WOOD, 1691."

Fig. 120.

This jug, which is believed to be unique, was the work of John Wedgwood, great uncle to Josiah Wedgwood, being the eldest brother to Josiah's paternal grandfather. John Wedgwood was born in 1654 and died in 1705. He was the grandson of Gilbert Wedgwood, the first of the name who settled in Burslem in the early part of the seventeenth century.* Another representation of this specimen, taken from the opposite side, is given in Jewitt's "Life of Wedgwood," p. 52.

G. 220. MOULD for a SAUCER, rudely incised with T. W. and other initials, and inscription "Thomas Wedgwood."

Coll. Enoch Wood.

As there were several potters of the Wedgwood family bearing the name of "Thomas," it is difficult to refer this undated piece to its original maker.

G. 221. DESSERT PLATE, ornamented with vine in low relief, and

* These particulars concerning John Wedgwood were kindly furnished by Miss Meteyard.

coated with bright green lead glaze; impressed mark "Wedgwood."*

G. 222. PLATE in cream-coloured ware, with gilt feather border and blue edging; impressed mark.

G. 223. PLATE in cream-coloured ware, painted with flowers in purple; pressed feather edge; no mark.

Compare the dish G. 244, which is stamped "Wedgwood."

G. 224. PLATE in cream-coloured ware, ornamented in early black transfer printing with groups of peacocks similar to those on No. G. 215; impressed mark.

G. 225. PLATE in cream-coloured ware, edged in orange, and painted with flowers and insects; impressed mark.

G. 226. PLATE in white ware, with simple star pattern printed in blue, forming a ground, with compartments containing flowers and Chinese figure-subjects outlined in black printing and afterwards coloured; edges of compartments gilt; mark impressed.

G. 227. PLATE in white ware, with flowers in red transfer-printing; impressed mark.

G. 228. PLATE in white ware, with fluted border; centre decorated with group of flowers and fruit printed in colours; impressed mark.

G. 229. PLATE in white ware, with fluted border; centre with classic scene printed in black and afterwards tinted by hand; impressed mark.

G. 230. PLATE in white ware, with large flowers painted on lilac ground; impressed mark.

G. 231. PLATE in white ware, with flowers in blue transfer-printing; impressed mark.

G. 232. PLATE in white ware, with Chinese scene in brown transfer-printing; impressed mark.

Presented by W. Taunton, Esq.

G. 233. SMALL PLATE in white ware, with conventional foliage outlined in brown printing and enamelled in red and blue with gilt edging; impressed mark.

G. 234. OPEN-WORK BASKET, circular, in cream-coloured ware; impressed mark.

G. 235. SMALL OPEN-WORK BASKET, oval, in cream-coloured ware; impressed mark.

G. 236. LARGE OPEN-WORK BASKET, oval, in white ware, tinted in blue; impressed mark.

G. 237. DESSERT DISH in form of conventional shell, with simple border printed in blue, and pressed edge tinted blue; impressed mark.

G. 238. DESSERT DISH, in similar style to last, with gilt edge; impressed mark.

G. 239. DESSERT DISH, in form of a pecten valve, tinted pink; impressed mark.

G. 240. DESSERT DISH, in form of a pecten valve, tinted in proper colours; impressed mark.

G. 241. DESSERT DISH, in form of a large pholas valve, tinted in natural colours; impressed mark.

G. 242. DESSERT DISH, in form of a leaf, coloured with tints of autumnal foliage; impressed mark.

G. 243. DESSERT DISH, in cream-coloured ware, painted and gilt. In centre, arms of the extinct Sussex family of *Dorrien;* with borders of vine and Greek anthemion; impressed mark "Wedgwood" and the letter A.

* A similar mark is stamped on each of the following pieces, unless otherwise stated.

G. 244. DESSERT DISH, in Queen's ware, painted in purple with rose, jasmine, and convolvulus; feather edge pressed and tinted; impressed mark.

G. 245. DESSERT DISH, shaped as quadrant of a ring, forming one of a set of four; 6 inches wide; cream-coloured ware, with simple floral border painted in brown on primrose-coloured ground; impressed mark.

G. 246. DESSERT DISH, of similar shape to last piece, with floral border in brown on vermilion ground; impressed mark.

G. 247. LARGE DISH, in coarse white ware; border painted with simple festoons, and edged with blue dots; impressed mark.

(On top shelf of Wall Case IX.)

G. 248. DISH, in cream-coloured ware; diamond shaped, with feather border painted in red on a brown riband; impressed mark.

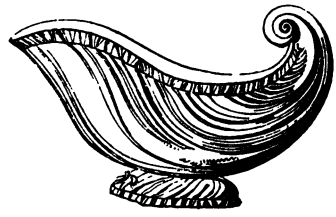
G. 249. OVAL DISH, in cream-coloured ware; basket pattern, with pierced border, edged in green; impressed mark.

G. 250. FISH DISH, in cream-coloured ware; oblong shape, octagonal, with two fish in low relief; impressed mark.

G. 251. BUTTER-BOAT, in Queen's ware (fig. 121). An early specimen of this ware made at the Bell Works.

Coll. Enoch Wood.

Fig. 121.



G. 252. TEA CANISTER, in cream-coloured ware, ornamented with tea-drinking scene in Watteau style, printed at Liverpool in early black transfer on the glaze; impressed mark.

Coll. Enoch Wood.

This piece is figured in Miss Meteyard's *Life of Wedgwood*, vol. ii. p. 64.

G. 253. BOAT-SHAPED DISH. Diameters, 10½ inches and 5 inches. Cream-coloured ware, with salmon-coloured border; sprinkled with star-shaped ornaments in brown and gold; impressed mark.

G. 254. SIX KNIFE-HAFTS, in cream-coloured ware; painted with vine, oak, autumnal leaves, dairy implements, &c.; unmarked.

G. 255. TEA-POT, in cream-coloured ware, printed on the glaze in purple transfer; impressed mark. On one side a tea-drinking party in costume of the period; on the other side the following stanza:

"Kindly take this Gift of mine,
"The Gift & giver I hope is thine;
"And tho' the value is but Small,
"A loving Heart is worth it all."

Presented by the Rev. J. Allen.

G. 256. FISH-SLICE, in cream-coloured ware, pierced; with green and brown edge; mark impressed.

G. 257. SOUP TUREEN, COVER, and STAND, in cream-coloured ware, with pressed border; mark impressed.

(On top shelf of Wall Case VI.)

G. 258. LARGE CENTRE-PIECE, in cream-coloured ware, painted blue and green. Height, 24 inches; impressed mark. The foot supports a circular plateau, on which stands a vase bearing six hooks, springing from goats' masks, for suspension of baskets; the fluted neck terminates in floriated ornament forming six other hooks round the mouth of the vase, which is closed by a stopper in form of pine-apple.

(On top shelf of Wall Case VI.)

G. 259. CHESNUT BASKET, with open-work COVER, in cream-coloured ware, decorated with embossed ornament and twisted handles; impressed mark.
(On top shelf of Wall Case VI.)

G. 260. FEMALE BUST representing Sadness, painted in natural colours. Height, 22 inches.
(On top shelf of Wall Case VII.)

G. 261. BOWL and PLATEAU, in white ware, with pierced edge; body ornamented in low relief with acanthus leaves and quatrefoils; impressed mark.
(On top shelf of Wall Case VII.)

G. 262. COMPOTIER in similar style to last; stamped "Wedgwood, Etruria."
(On top shelf of Wall Case VII.)

G. 263. CUP and SAUCER in early cream-coloured ware, painted with trophies in brown camaieu; impressed mark. The cup has no handle, and its base is sunk into a well in the saucer so as to secure stability.
Presented by W. H. Goss, Esq.

G. 264. CUP and SAUCER, in early cream-coloured ware, edged with orange and painted with autumnal leaves; impressed mark.
Coll. Bandinel.—Presented by Dr. Page.

G. 265. CUP and SAUCER, in cream-coloured ware, painted with flowers in purple; border pressed; double-twisted handle; impressed mark.

G. 266. CUP and SAUCER, in cream-coloured ware, edged with orange, and painted with flowers and insects; impressed mark.

G. 267. CUP and SAUCER, in cream-coloured ware, edged with gold, and ornamented with flowers printed in black outline, and afterwards coloured by hand; impressed mark.

G. 268. BREAKFAST CUP and SAUCER in plain white ware, printed in black "*Nursery;*" impressed mark.
(On top shelf of Wall Case V.)

G. 269. TWO-HANDLED CUP and SAUCER, in plain white ware, gilt edged; impressed mark.
(On top shelf of Wall Case VI.)

G. 270. TWO-HANDLED CUP, COVER, and STAND, in plain white terra-cotta, glazed inside; impressed mark.

G. 271. MUG and SAUCER, in white ware, with view of shipping-port in brown transfer-printing; impressed mark.

G. 272. SAUCER, painted and gilt with conventional foliage in oriental style; impressed mark.

G. 273. COFFEE-CUP and SAUCER, with flowers in oriental style printed in cobalt blue under the glaze, and the ground painted over the glaze with scale pattern in vermilion; unmarked.

G. 274. TEA-CUP, in same style as last.

G. 275. STAND for SIX EGG-CUPS in same style.

G. 276. to G. 278. THREE EGG-CUPS to fit the stand. Nos. G. 273 to G. 278 form a portion of the breakfast service made by Wedgwood for George III. for use at Gloucester Lodge, Weymouth.
Presented by Hugh Owen, Esq.

G. 279. EGG-CUP, in cream-coloured ware, with floral border painted in green and crimson.

G. 280. PEN-TRAY, in drab glazed ware, mounted on four claws; impressed mark.

G. 281. DRINKING-VESSEL, in form of a hound's head, painted in natural colours; marked in red "Wedgwood."

G. 282. SAUCE-BOAT and COVER in white ware, with pressed edge tinted in blue; cover surmounted by figure of a sea-horse; impressed mark.

G. 283. SUGAR-BASIN, in white ware, edged in gold, and decorated with flowers printed in black outline and afterwards coloured; impressed mark.

G. 284. BUTTER-POT and COVER, in yellow glazed ware, with band of coloured ornaments on chocolate ground; cover surmounted by female figure; impressed mark.

G. 285. BASIN, in white ware, with conventional foliage in oriental style printed in blue and touched with gold; impressed mark.

G. 286. VASE in shape of flower-pot, with perforated cover for cut flowers. White ware, coated with mottled iridescent glaze; impressed mark.

This vase has been furnished with a handle springing from the two sides, the bases of which remain.

G. 287. FONT, for suspension against a wall, in plain cream-coloured ware; impressed mark.

G. 288. DOUBLE-HANDLED FEEDING-VESSEL for the nursery, in plain cream-coloured ware; impressed mark.

G. 289. DOUBLE-HANDLED CREAM-JUG, with two spouts, in brown glazed "Rockingham ware;" impressed mark "Wedgwood."

G 290. SMALL CREAM-JUG, in white stone-ware, ornamented in relief with band of flowers in blue; impressed mark.

G. 291. DOUBLE-HANDLED BASIN and COVER, in drab-coloured stone-ware, decorated in relief with acanthus leaves and other Greek ornaments in blue and lilac; impressed mark.

G. 292. QUART JUG and COVER, in drab-coloured stone-ware, ornamented in white relief with classic figures of Bacchus, Pan, a satyr, &c.; beneath the spout a mask, and round the neck a border of vine; impressed mark.

(On top shelf of Wall Case IX.)

G. 293. BUTTER-POT and COVER, in white terra-cotta, ornamented in relief with band of vine leaves.

(On top shelf of Wall Case VIII.)

G. 294. VESSEL, in several parts, forming both tea-pot and coffee-pot, in plain white glazed ware; impressed mark.

(On top shelf of Wall Case VIII.)

295. TEA-POT and COVER, in white stone-ware, ornamented in relief with band of Roman scroll-work; the cover surmounted by figure of a spaniel; impressed mark.

(On top shelf of Wall Case VIII.)

G. 296. TEA-POT and COVER, in plain red jasper ware, glazed inside; impressed mark.

G. 297. TEA-POT and COVER, in red ware, ornamented in relief with Egyptian figures in black; cover surmounted by figure of a crocodile; impressed mark.

G. 298. COFFEE-POT and COVER, in red ware, ornamented with flowers enamelled and gilt; impressed mark.

G. 299. EWER and COVER, in plain red ware, glazed inside; impressed mark.

G. 300. TEA-POT and COVER, in cane-coloured ware, with floral ornament embossed; glazed inside; impressed mark.

G. 301. DOUBLE-HANDLED TAZZA, with perforated cover for cut flowers, in cane-coloured ware, ornamented in relief with frieze of anthemion and acanthus in dull green; impressed mark.

G. 302. INKSTAND, in form of a round pedestal or Roman altar. Height, 4¼ inches; diameter, 3¼ inches; cane-coloured ware, ornamented in red relief with military trophies, oval medallions, and floral festoons pendent from rams' heads; impressed mark.

G. 303. GOBLET. Height, 5¾ inches; diameter of mouth, 3¾ inches. Cane-coloured ware ornamented outside with embossed basket pattern, and glazed inside.

G. 304. CANDLESTICK. Height, 8¼ inches. Cane-coloured ware with embossed basket pattern, glazed; base octagonal, with border of acanthus leaves; impressed mark.

G. 305. TABLE ORNAMENT, in form of raised cake. Fawn-coloured ware ornamented in white relief; oval top with musical trophy surrounded by garland; impressed mark.

G. 306. LARGE OVAL PIE-DISH and COVER in buff-coloured ware, ornamented with band of vine leaves and grapes in relief; impressed mark.

(On top-shelf of Wall Case VI.)

Dishes representing baked pie-crust were made by Wedgwood in times of scarcity, in order to avoid the use of flour. In the *Life of George Brummell** it is said that "the scarcity two years after Brummell's retirement, viz., in July 1800, was so great that the consumption of flour for pastry was prohibited in the Royal Household, rice being used instead; the distiller left off malting, hackney-coach fares were raised twenty-five per cent, and Wedgwood† made dishes to represent pie-crust."

G. 307. BASIN, in bamboo-ware. Height, 3½ inches; diameter of mouth, 7½ inches. Embossed surface tinted blue and white; impressed mark.

G. 308. TWO-HANDLED VASE and COVER, in "granite ware." Height, 13 inches; greatest diameter of body, 5 inches. Cream-coloured ware sprinkled with blue; ornamented in relief with group of three amorini eating grapes, a band of laurel round the neck, and two handles terminating in floriated ornament; mounted on square plinth of black Egyptian ware, stamped in a circle with "Wedgwood and Bentley, Etruria."

G. 309. OVIFORM AMPHORA and COVER, in "onyx ware." Height, 8 inches; greatest diameter of body, 3½ inches. Marbled body, with gilt handles in form of horns springing from Bacchanalian masks; mounted on square plinth of white jasper ware, with impressed egg-and-tongue border; stamped "Wedgwood and Bentley."

G. 310. GOBLET in black Egyptian ware, or "basaltes." Height, 6½ inches; diameter of mouth, 3¾ inches. Ornamented in front with oval medallion, bearing classical figure-subject in bas-relief; impressed mark "Wedgwood and Bentley, Etruria."

The medallion on this piece has been cracked in the firing.

G. 311. STATUETTE of SPHINX in black Egyptian ware, mounted on oblong plinth, 12¼ inches by 5¼ inches; unmarked.

Figured in Miss Meteyard's *Life of Wedgwood*, vol. ii. p. 159.

G. 312. BULB-POT in form of porcupine, modelled in black Egyptian ware; impressed mark "Wedgwood."

G. 313. MUG in black Egyptian ware. Height, 6¾ inches; diameter, 5 inches. Ornamented in low relief with two infant sportsmen bearing

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* Life of George Brummell, Esq., by Capt. Jeffs. 1844, vol. i. p. 49.

† As Josiah Wedgwood died in 1795, this must have reference only to the firm of Wedgwoods.

a stag's head and leading a hound; rim mounted in silver; impressed mark.

G. 314. INKSTAND, with octagonal base, in plain black ware; impressed mark "Wedgwood and Bentley."

G. 315. OVIFORM AMPHORA and COVER in black Egyptian ware. Height, 14 inches; greatest diameter of body, 6¼ inches. Handles in form of twisted serpents springing from classic masks; front ornamented in low relief with female figure holding poppies to Cupid; unmarked.

Figured in Miss Meteyard's *Life of Wedgwood*, vol. ii. p. 144.

G. 316. DOUBLE-HANDLED TAZZA, in plain black Egyptian ware. Height, 4¼ inches; diameter, 7 inches; impressed mark.

G. 317. DOUBLE-HANDLED VASE, in plain black Egyptian ware. Height, 7 inches; greatest diameter of body, 5¼ inches; impressed mark.

G. 318. DOUBLE-HANDLED VASE in black Egyptian ware. Height, 11¼ inches; greatest diameter, 6 inches. Oviform body, ornamented with oval medallion bearing figures of the three Graces in low relief; two handles in form of acanthus leaves, from which floral festoons depend; impressed mark "Wedgwood and Bentley, Etruria."

G. 319. VASE or EWER in black Egyptian ware (fig. 122). Height, 16 inches; greatest diameter of body, 6½ inches. A seated Triton, surrounded by the sea, clasps the neck, which is ornamented with a dolphin's head; body decorated with festoon of bulrushes and border of leaves; mounted on square plinth with anthemion border; impressed *mark "Wedgwood."*

Fig. 122.

G. 320. VASE or EWER in black Egyptian ware. Height, 13 inches; diameter of body, 5½ inches. Handle in form of dolphin's tail, arched; body oviform, ornamented with festoons of drapery pendent from circular medallions and from grotesque masks under spout and handle; neck with border of meander ornament; mounted on plain square plinth; impressed mark "Wedgwood and Bentley, Etruria."

G. 321. EWER and COVER, with trefoil lip, in plain black Egyptian ware; impressed mark "Wedgwood." Height, 11 inches; greatest diameter of body, 5 inches.

G. 322. BUST of CORNELIUS DE WITT, in black Egyptian ware. Height, 24 inches; impressed mark "Wedgwood and Bentley."

(On top shelf of Wall Case VIII.)

Cornelius de Wirt, a famous Dutch statesman, was born at Dort in 1623. After the overthrow of the Orange party in 1650, he held several public appointments, and subsequently served on board the fleet of De Ruyter. In 1674 he was arrested

on a false accusation, and while in prison at the Hague, he and his brother were murdered by an infuriated mob.

Wedgwood's life-sized busts of Dutch patriots were modelled about the year 1779, and had a large sale in Holland.

G. 323. OVIFORM AMPHORA and COVER, in black Egyptian ware (fig. 123). Height, 17 inches; greatest diameter, 9 inches. Handles in form of serpents springing from head of Medusa; body ornamented in relief with classic group representing the apotheosis of Homer; cover surmounted by a Pegasus; impressed mark "Wedgwood."

(On top shelf of Wall Case IX.)

Fig. 123.

G. 324. LAMP in black Egyptian ware (fig. 124). Height, 14 inches. Base triangular, with three classic figures grouped around a central shaft which supports a shallow vase bearing three small burners in scallop shells; cover terminated by burner in form of palm tree, with three seated figures; impressed mark "Wedgwood."

Fig. 124.

Fig. 125.

G. 325. } PAIR of CHIMERAS, with
G. 326. } nozzles for candles, in black Egyptian ware (fig. 125). Height, 13¼ inches; impressed mark "Wedgwood."

G. 327. } PAIR of FLOWER-VASES,
G. 328. } mounted on TRIPODS, in black Egyptian ware, with classic ornament in relief. Height, 7 inches; diameter of mouth, 3½ inches; impressed mark "Wedgwood," and one dated "2 Feby. 1805."

G. 329. TEA-KETTLE and COVER, in black Egyptian ware; engine-turned pattern; impressed mark.
(On top shelf of Wall Case IX.)
Presented by W. H. Goss, Esq.

G. 330. COFFEE-POT, in black Egyptian ware; ribbed pattern; impressed mark.
(On top shelf of Wall Case IX).

G. 331. COFFEE-POT and COVER, in black Egyptian ware; ribbed pattern; handles terminating in masks; impressed mark.
(On top shelf of Wall Case IX.)

G. 332. CUP and SAUCER, in black Egyptian ware; ribbed pattern.

G. 333. CUP and SAUCER, in black ware, with simple border painted in red and white; impressed mark.

G. 334. JUG, with trefoil lip; black ware, with body painted red, leaving figures in black, touched with white enamel; impressed mark.

G. 334*a*. OVAL PLAQUE, in black ware, with aerial female figure or "danzatrice" in relief; unmarked.

G. 335. DOUBLE-HANDLED TAZZA, in black ware, with two covers, one being perforated for cut flowers. Height, 7¼ inches; diameter, 9¼ inches. Body ornamented in red relief with band of vine leaves and grapes; base with red embossed ornaments; impressed mark "Wedgwood"
(On top shelf of Wall Case X.)

G. 335*a*. DOUBLE-HANDLED TAZZA, in white stone-ware, with band of vine leaves in brown relief ornament; impressed mark.
(On top shelf of Wall Case X.)

G. 336. LARGE DOUBLE-HANDLED VASE and COVER, in Etruscan style. Height, 21½ inches; greatest diameter, 11 inches. Black ware, painted with classic figures in red and white encaustic colours; impressed mark "Wedgwood."
(On top shelf of Wall Case X.)

G. 337. DOUBLE-HANDLED VASE, resembling an Etruscan Oxybaphon. Height, 8 inches; diameter of mouth, 8¼ inches. Black ware, painted with dancing figure in red and white encaustic colours; impressed mark "Wedgwood."

G. 338. AMPHORA, in Etruscan style. Height, 12¾ inches; greatest diameter of body, 7 inches. Black ware, painted with classic figures in red and white encaustic colours; impressed mark "Wedgwood."

G. 339. OVIFORM AMPHORA, in pale blue jasper ware with cameo figures in white relief. Height, 10½ inches; greatest diameter, 4¾ inches. Body ornamented with frieze of figures representing a mother and infant, with children playing; band of laurel round neck; handles springing from lions' masks; impressed mark "Wedgwood."

G. 340. OVIFORM AMPHORA and COVER, in pale blue jasper ware with cameo figures in white relief. Height, 15¼ inches; greatest diameter, 6½ inches. Body ornamented with frieze of figures representing Apollo and the nine Muses; floriated handles in white; cover surmounted by a white figure of Pegasus; square plinth with border of anthemion; impressed mark "Wedgwood."

G. 341. CUP and SAUCER, in white stone-ware, coated with deep blue jasper dip and ornamented in white relief with fern-fronds and border of hippuris; impressed mark "Wedgwood."

Presented by the Rev. Greville J. Chester, M.A.

G. 342. COPY of the BARBERINI or PORTLAND VASE, in black ware with bas-reliefs in white. Height, 10 inches; greatest diameter, 7⅓ inches.

This is one of the original fifty copies made by Wedgwood, and was obtained from Mr. Charles Darwin, F.R.S., one of Wedgwood's descendants. The original vase is formed of dark blue transparent glass with the bas-reliefs laid on in white opaque paste. It was discovered between the years 1623 and 1644, in a marble sarcophagus buried beneath the mound called Monte de Grano, near Rome, which was opened by order of Pope Barberini (Urban VIII.) The sarcophagus was formerly supposed to be that of the Emperor Severus and his mother Mamaea, who were slain in Germany, A.D. 235. The vase was brought to England by Sir W. Hamilton in 1784, and purchased by the Duchess Dowager of Portland. At the sale of her museum in 1786 it was bought in by the Duke of Portland for 1,029*l.*,* and was then lent to Wedgwood for the purpose of being copied. The vase is now in the British Museum, where some years ago it suffered violent injury. The period of its manufacture and the subjects of its bas-reliefs remain uncertain.

G. 343. LARGE VASE in form of Greek crater. Height, 2 feet 7 inches; greatest diameter, 18 inches. For form and design see frontispiece. Copy of a Greek vase in the British Museum (No. 1567), belonging to the latest period of vase painting known as the style of the Basilicata, and supposed to be not earlier than 200 B.C.

Presented by the late Apsley Pellatt, Esq., M.P.

The original of this vase was formerly in Sir W. Hamilton's collection. This copy was the largest work executed by Wedgwood; it is mounted on a pedestal in front of a column near Wall Case I.

G. 344. to G. 353. TEN TABLETS supporting one hundred and eighty-nine oval CAMEO MEDALLIONS and five INTAGLIOS and SEALS, in black Egyptian ware, many of them stamped "Wedgwood and Bentley."

This collection includes cameo portraits of many Greek heroes, poets, and philosophers, and Roman emperors, poets, historians, philosophers, &c.

G. 354. CAMEO PORTRAIT of George III., in white jasper ware, framed and glazed.

G. 355. OVAL MEDALLION in white terra-cotta; 4 inches by 3¼ inches. Profile portrait of Admiral Keppel; impressed mark "Wedgwood and Bentley."

G. 356. OVAL CAMEO MEDALLION in jasper ware, white on pale blue ground. 4¼ inches by 3¼ inches. Profile portrait of Sir W. Herschel; impressed mark "Wedgwood."

G. 357. CIRCULAR CAMEO MEDALLION in jasper ware, white on deep blue ground. Diameter, 2⅜ inches. Portrait, surrounded by border of fleur-de-lis.

G. 358. CIRCULAR CAMEO MEDALLION in jasper ware, white on pale blue ground. Diameter, 2 inches. Aërial figure of Aurora scattering flowers.

G. 359. CIRCULAR CAMEO MEDALLION in jasper ware, white on dark blue ground. Diameter, 1⅜ inches. Hercules and the Nemean Lion.

G. 360. CIRCULAR CAMEO MEDALLION in jasper ware, white on dark

* A copy of the catalogue of the Portland Museum, in the Library of this Institution, has the sum for which each lot was sold marked in manuscript, together with the name of the purchaser.

blue ground. Diameter, 1⅜ inches. Hercules and the Cretan Bull.

G. 361. CIRCULAR CAMEO MEDALLION in jasper ware, white on dark blue ground. Diameter, 1⅜ inches. Neptune and Minerva.

G. 362. CIRCULAR CAMEO MEDALLION in jasper ware, white on dark blue ground. Diameter, 1⅜ inches. Female sacrificing.

G. 363. CIRCULAR CAMEO MEDALLION in jasper ware, white on dark blue ground. Diameter, 2¼ inches. Females sacrificing.

G. 364. OVAL CAMEO MEDALLION in jasper ware, white on dark blue ground. 2⅞ inches by 1½ inches. Mucius Scaevola before King Porsenna.

G. 365. OVAL CAMEO MEDALLION in jasper ware, white on dark blue ground, with relief on both sides. 1½ inches by 1¼ inches. Classic subjects.

G. 366. OVAL CAMEO MEDALLION in jasper ware, white on dark blue ground. 2½ inches by 1⅝ inches. Aërial figure of Psyche, surrounded by white border.

G. 367. CAMEO MEDALLION in jasper ware, white on dark blue ground; shape, pointed oval. 2¼ inches by 1⅛ inches. Figure of Ariadne with dolphin.

G. 368. CAMEO MEDALLION in jasper ware, white on dark blue ground; shape, pointed oval. 2¼ inches by 1⅛ inches. Figure of Pomona with cornucopia.

G. 369. RELIEVO PLAQUE in jasper ware; shape, octagonal oblong. 2¾ inches by 1⅛ inches. Subject, Aurora in her chariot, attended by two flying cupids; white on brown ground, surrounded by border in white on blue ground.

G. 370. RELIEVO PLAQUE in jasper ware; shape, octagonal oblong. 2½ inches by ⅝ inch. Classical subject in white on sage-green ground, surrounded by border in white on blue ground.

G. 371. RELIEVO PLAQUE in jasper ware; shape, octagonal oblong. 2½ inches by ⅝ inches. Classical figures in white on sage-green ground, edged in dark brown.

G. 372. LARGE RELIEVO PLAQUE in jasper ware, rectangular shape. 15 inches by 6 inches. Subject, the sacrifice of Iphigenia (fig. 126), white cameo-work on sage-green ground; impressed "Wedgwood."

The modelling of this bas-relief is attributed to the Italian artist Pacetti. It is copied from the sculpture on the sarcophagus in which the Barberini vase was discovered, and which is preserved in the Museum of the Capitol at Rome.

Fig. 126.

Wedgwood Porcelain.

[Wall Case X.]

Although it is believed that the manufacture of porcelain was not attempted by Josiah Wedgwood, it is known that it was subsequently undertaken at Etruria by his nephew Thomas Byerley. The production of porcelain at these works commenced probably about the year 1808, but was carried on for only a short period.

G. 373. CUP and SAUCER in Wedgwood porcelain, ornamented with birds and flowers outlined in transfer-printing and enamelled in colours; gilt diamond border; marked in red.

G. 374. MUG, in similar style to last; marked in red.

G. 375. MUG, painted with view of Pont Aberglasslyn in North Wales; gilt edge: marked in red.

G. 376. SAUCER; in similar style to last, with view in Enniskillen; marked in red.

G. 377. PLATE, with fluted border and gilt edge, painted in similar style to last with view of Sathram Down, Devon; marked in red.

G. 378. PLATE, with fluted border and gilt edge, painted with poppy, convolvulus, and other flowers; marked in red.

G. 379. CUP and SAUCER, ornamented with vine leaves in low relief; gilt edge; marked in red.

Old Staffordshire Ware, exclusive of Wedgwood and Spode Ware.

[Wall Case VI. to X.; lower shelves.]

G. 380. OCTAGONAL PLATE. Diameter, 8 inches. Delft ware, painted in blue with river scene; marked in blue under the glaze "*I. T.* (Josiah Twyford), *March y^e* 1, $17\frac{39}{40}$."

G. 381. OBELISK. Height, 16 inches. Granite ware, with surface of variegated fragments sprinkled in brown paste and glazed; mounted on square blue pedestal with white oval medallions in relief, and gilt leaf borders; impressed mark, "Ra. Wood, Burslem," and number 83.

As the apex of the obelisk is broken, it was probably surmounted by an ornament or by a nozzle for holding a candle.

G. 382. OVAL DISH. Diameters, 9 inches and $7\frac{1}{2}$ inches. Cream-coloured ware, with embossed basket pattern, and pierced border, edged in blue; impressed mark, "E. WOOD."

G. 383. OPEN-WORK BASKET, in similar style to last; unmarked.

G. 384. SAUCER for FLOWER-POT. Diameter, 5 inches. White glazed earthenware, ornamented with scrolled riband in relief on blue ground; impressed mark, "ENOCH WOOD & SONS."

G. 385. FLOWER-POT, in similar style to last. Height, 4 inches; diameter, $4\frac{3}{4}$ inches. Ornamented with frieze of classic figures, including Hercules and the Nemean Lion, in white relief on blue ground; impressed mark, "WOOD & CALDWELL."

G. 386. BUST of ALEXANDER, Emperor of Russia, in military costume, painted in colours. Height, 12 inches. Inscribed on back, "Alexander, Æt. 35. Moscow burnt, Europe preserved, 1812."

pressed mark, "WOOD & CALDWELL, BURSLEM, *Staffordshire*."

G. 387. STATUETTE of FALSTAFF, painted in colours. Height, 9 inches; impressed mark, "WOOD & CALDWELL."

G. 388. STATUETTE of DR. FRANKLIN, painted in colours. Height, 13¼ inches. Mounted on square marbled pedestal with yellow oval medallions in relief; unmarked.

G. 389. JUG. Height, 8 inches. White earthenware, with rustic figures modelled in high relief, and coarsely painted; inscribed "D. VOYEZ," and obscured date (1788 ?).

This jug is figured in Miss Meteyard's *Life of Wedgwood*, vol. ii., p. 89.

G. 390. COFFEE-POT and COVER in black "Egyptian" ware. Height, 10 inches. Ribbed pattern; floriated handles and spout; cover surmounted by seated female figure; impressed mark, "E. Mayer."

G. 391. TEA-POT and COVER in buff-coloured ware, with embossed wicker pattern; cover surmounted by seated female figure; impressed mark, "E. Mayer."

G. 392. BASIN. Height, 3¼ inches; diameter, 6¾ inches. Buff-coloured ware edged in blue, and ornamented in relief with cupids, satyrs, and other classic figures; impressed mark, "E. Mayer."

G. 393. VASE and COVER in buff-coloured ware, painted. Height, 12¼ inches. Oviform body, with festoons of green drapery pendent from oval medallions and from two lions' masks forming handles; open-work cover surmounted by pine-apple; impressed mark, "E. Mayer."

G. 394. COFFEE-POT and COVER in black Egyptian ware. Height, 9¼ inches. Ribbed pattern, with a frieze of figures representing Liberty, &c.; unmarked.

Presented by Mrs. Watson.

G. 395. CREAM JUG in marone ware. Height, 4¼ inches. Ribbed body, with leaves in relief on handle and spout; unmarked. Manufactured by J. Mayer, Hanley.

Presented by W. H. Goss, Esq.

G. 396. TEA-POT and COVER, in fine cream-coloured stone-ware resembling parian; body ornamented in relief with figures of Cupid and female, and a girl reading; cover surmounted by figure of mother and infant; unmarked. Manufactured by J. Mayer, fifty years before the discovery of parian ware.

Presented by W. H. Goss, Esq.

G. 397. JARDINIÈRE in jasper ware. Height, 6 inches; diameter, 3¼ inches. Square vase, with perforated cover; pale blue ground, with cameo figures in white relief representing the proclamation of Liberty, Commerce, and Union; impressed mark, "*NEALE & CO.*"

G. 398. } PAIR of STATUETTES,
G. 399. } male and female classic figures in white jasper ware, mounted on pedestals of lilac-coloured jasper; impressed mark, "*NEALE & CO.*"

G. 400. SPILL VASE. Height, 5 inches; diameter, 4¼ inches. Octagonal vase in green-glazed ware, with floral festoons in relief, bearing traces of gilding; impressed mark, "*NEALE & CO.*"

G. 401. LARGE URN and COVER in Neale's ware (fig. 127). Height, 18 inches; diameter, 9 inches. Oviform vase, in green-glazed ware, with gilt oval medallions ornamented in relief with figure of weeping female; gilt funereal wreaths are suspended from the medallions and entwined around two gilt busts forming handles; unmarked.

Fig. 127.

G. 402. LARGE OVAL PLAQUE in black Egyptian ware, with profile portrait in relief, supposed to be that of William Penn; mounted in black and gold frame; impressed mark, "*NEALE & CO.*"
(On shelf above.)

G. 403. OVAL DISH in cream-coloured ware, with pierced border and embossed wicker pattern; impressed mark, "*NEALE & CO.*"

G. 404. SMALL VASE, on pedestal, in jasper ware. Height, 5¼ inches; diameter, 3¼ inches. Dark blue ground, with white cameo figures; amorini on the pedestal, and floral festoons pendent from rams' heads on the vase; impressed mark, "*STEEL.*"

G. 405. BASIN in cane-coloured ware. Height, 3½ inches; diameter, 8¼ inches. Embossed with female figures; impressed mark, "TURNER."

G. 406. OVAL SUGAR-BASIN and COVER in cane-coloured ware, embossed with figures of nymphs attended by cupids and representing Air and Water; cover surmounted by seated female figure; impressed mark, "TURNER."

G. 407. OVAL OPEN-WORK BASKET and STAND in cane-coloured ware, embossed with wicker pattern; impressed mark, "TURNER."

G. 408. DOUBLE-HANDLED VASE in jasper ware. Height, 7½ inches. Ground blue with white figures in relief, representing on one side a female weeping at a funeral monument, and on the other side mother and children; meander pattern round the shoulder; mounted on octagonal base of polished black ware; impressed mark, "TURNER," and figure 4.

G. 409. HALF-GALLON JUG in cream-coloured stone-ware, with neck and handle coated with chocolate-coloured glaze; ornamented with embossed figures, representing Britannia succouring the Slave; impressed mark, "TURNER."
(On shelf below.)

G. 410. DISH and COVER in form of a duck trussed; cream-coloured stone-ware with relief ornament, glazed inside; impressed mark, "TURNER."

G. 411. OVAL DISH in common white ware, with pierced border and band of embossed wicker-work; centre printed in blue with willow pattern; impressed mark, "TURNER."

G. 412. PLATE in coarse cream-coloured ware, stamped TURNER; coarsely painted in German style over the glaze, and fired; subject, a female confessing to a priest whilst held captive by Satan; inscribed *Den Biegt.*

G. 413. SALT-CELLAR, in form of small vase, mounted on four claws.

Height, 3 inches; diameter, 2¾ inches. Drab-coloured stone-ware, with white vine leaves in relief; impressed mark, "Ridgway."

G. 414. VASE and COVER in porcelain, painted and gilt. Height, 8 inches. Ornamented with frieze of roses, &c. painted on gold ground; two handles in form of swans' necks, gilt; impressed mark, "Ridgway & Sons."

G. 415. COFFEE-POT and COVER in New Hall china. Height, 9 inches. Coarsely painted with flowers in red and blue; marked in red printing over the glaze with "*New Hall*," surrounded by a double circle.

G. 416. BASIN in New Hall china. Height, 3 inches; diameter, 6¼ inches. White porcelain painted and gilt with conventional flowers; marked in red similarly to last piece.

G. 417. SUGAR-BASIN and COVER in pale blue glazed earthenware, with simple white ornaments in relief; impressed mark, "HARDING."

G. 418. CREAM-JUG in brown glazed "Rockingham" ware; impressed mark, "HARDING."

Presented by Mrs. Watson.

G. 419. } PAIR of SMALL OVAL
G. 419*a*. } DISHES in cream-coloured ware, artistically painted with knights and armed figures, by George Eyre, whose cypher is painted in brown; impressed mark, "HACKWOOD."

G. 420. TOY PLATE. Diameter, 3½ inches. White earthenware, with bird and nest in blue printing; impressed mark, "C. & H. (Cookson and Harding), late Hackwood."

G. 421. } PAIR of FIGURES re-
G. 422. } presenting Gardener *and* Fishwoman, coarsely painted. Height, 7 inches; impressed mark, in scroll, "WALTON."

G. 423. FIGURE of Lion couchant beneath tree, in similar style. Height, 5 inches; impressed mark, in scroll, "WALTON."

G. 424. FIGURE of a Shepherdess, painted in colours. Height, 5 inches; impressed mark, "SALT."

G. 425. BASIN in jasper ware. Height, 3½ inches; diameter, 7½ inches. White ground, with cameo figures in blue representing female weeping at a tomb, female crowning bust with garland, mother with children, &c.; impressed mark, "T. & J. HOLLINS."

Presented by C. H. Carruthers, Esq.

G. 426. BASIN. Height, 5 inches; diameter, 9 inches. Sage-green ware, fluted and embossed with flowers; decorated with dark blue bands painted in white; impressed mark, "S. HOLLINS."

G. 427. JUG in marone ware. Height, 6½ inches. Ornamented with embossed hunting scene; rim mounted in silver; impressed mark, "S. HOLLINS."

G. 428. PLATE in blue glazed ware, with pierced border, gilt edge, and centre with view in Mesopotamia printed in black; unmarked.

G. 429. SMALL BASKET, or card-tray, in cream-coloured ware, painted with simple border in brown and green; impressed mark, "SHORTHOSE & CO."

G. 430. OVAL COMPOTIER and STAND in cream-coloured ware; open-work sides; impressed mark, "SHORTHOSE & CO."

G. 431. OVAL DISH in cream-coloured ware, embossed with wicker pattern; pierced border; impressed mark, "SHORTHOSE & HEATH."

G. 432. OCTAGONAL TEA-POT in white glazed earthenware, with

pressed leaf border and gilt sprigs of flowers on the sides; cover surmounted by swan; impressed mark, "HARLEY."

G. 433. LARGE TEA-POT in black Egyptian ware, with fluted body and raised classic figures; impressed mark, "MOSELEY."

G. 433*a*. SUCRIER, in black ware, with fluted body, and frieze of classic figures in relief; impressed mark, "Birch."

G. 434. INKSTAND in black ware, ornamented with engine work; impressed mark, "MIST, LONDON."

G. 435. SPILL VASE in porcelain, painted with landscape in panel on deep blue ground enriched with gilt scroll-work; marked, in red "M. & N. 264." (Mayer and Newbold).

G. 436. SALT-CELLAR, a small two-handled square dish in common white ware, with Chinese willow pattern printed in blue; impressed mark, "PHILLIPS, LONGPORT."

G. 437. TWO-HANDLED CUP, COVER, and SAUCER, in porcelain, painted with landscape, and gilt with oak pattern; marked in red, "*Longport.*"

G. 438. SQUARE COMPOTIER in porcelain, with gilt scroll border; centre finely painted with group of fruit; marked in red, "Davenport, LONGPORT."

Compare painting on this piece with Steele's fruit on the Derby porcelain, J. 62.

G. 439. COFFEE-CUP and SAUCER in porcelain, with gilt border of flowers in alternate compartments of blue and white; marked in red with an anchor surmounted by motto, "DAVENPORT."

G. 440. MATCH-POT in cream-coloured ware, painted with floriated pattern in red and brown; handles in form of dolphins' masks; impressed mark, "Davenport" above an anchor.

G. 441. OCTAGONAL BASKET and STAND, with open-work sides; printed in blue, with landscape in Chinese style; impressed mark, "Davenport" above an anchor.

G. 442. MUG and SAUCER in common ware, coarsely painted with flowers; impressed mark, "DAVENPORT," an anchor, and figures 4·67.

G. 443. TEA-POT and COVER, with silver-mounted spout; glazed fawn-coloured body ornamented with gilt lines, and painted with landscapes in brown monochrome; impressed mark, an anchor.

G. 444. SOUP-PLATE, in plain white ware; impressed mark, "DAVENPORT," an anchor, and figures 11·68; printed in black for the South American market. "Bar-" toleme Uribe, Arzobispe, No. 32, " Lima."

G. 445. } TWO PLATES, with
G. 446. } scroll borders in green and gold; centres painted with groups of fruit in similar style to that on No. G. 438; marked in red, "*Crystal Ware.*"

G. 447. LARGE JUG. Height, 8 inches. Blue jasper ground with white raised figures representing the four seasons; floral border round the neck; rim mounted in silver; impressed mark, "ADAMS."

G. 448. DESSERT PLATE, in green glazed ware, with flowers in low relief; impressed mark, "J. ADAMS."

G. 449. FISH PLATE, in common white ware, with a fish printed in brown; impressed mark, "CLOSE " & CO., late Wm. Adams and " Sons, Stoke-upon-Trent."

G. 450. WINE-CASK, mounted on stand, in cream-coloured ware by Thomas Miles. Cask painted dark brown and glazed, with gilt hoops; supported on four figures representing boys holding grapes and kneel-

ing at the corners of a square table, which rests on four pedestals with embossed trophies. Barrel stamped "M. 22;" Stand stamped "M. 15."

G. 451. QUART JUG, in stoneware; drab-coloured ground with white raised figures representing cupids at play; floral band round neck; impressed mark in two places, "WILSON."

G. 452. DOUBLE-HANDLED CUP and SAUCER in cream ware, painted chocolate colour and ornamented with broad gilt band of Greek meander pattern; impressed mark, "WILSON."

G. 453. DISH, shell pattern, in common ware, printed in blue with combination of classic ruins and English landscape; impressed mark, "LAKIN."

G. 454. OCTAGONAL CISTERN for holding water for a dog, in plain cream-coloured ware; impressed mark, "R. POOLE."

G. 455. DISH, mounted on foot, with stand, in common white ware printed in blue with broad floral border and Chinese subject in centre; impressed mark, "ROGERS."

G. 456. PLATE, printed in blue with oriental scene; impressed mark, "ROGERS."

G. 457. PLATE, edged in green and orange, and painted with pink chrysanthemum and forget-me-not; impressed mark, "ROGERS."

G. 458. PLATE, with embossed border edged in orange; centre with view of Claremont House printed in black and coarsely coloured; inscribed, "The seat of Her late Royal Highness Princess Charlotte and Prince Leopold;" impressed mark, "A. STEVENSON, Warranted Staffordshire," in circle *surrounding* a crown.

G. 459. PLATE in similar style, with a steamboat printed in brown and coarsely coloured; inscribed, "On her passage from Belfast to Liverpool at the rate of 10 miles an hour;" impressed mark as on last piece.

G. 460. OVAL DISH, in cream-coloured ware, with pierced border; impressed mark, "STEVENSON," with ship beneath.

G. 461. SQUARE DISH in deep cream-coloured ware, with embossed border of flowers; impressed mark, a crown with "CLEWS, Warranted Staffordshire."

G. 462. FLOWER VASE, with bow front, ornamented in purple bat-printing with views of English mansions in three compartments; border painted red, and pilasters red and blue; impressed mark, "Bott & Co."

G. 463. DOUBLE-HANDLED CUP, COVER, and STAND, gilt with Greek ornament and oak leaves; impressed mark, "M. MASON."

In connection with Mason's china it may be interesting to quote the following advertisement from the *Morning Herald* of Monday, October 15, 1804:—

MASON'S CHINA.

It has hitherto been the opinion, not only of the Public, but also of the Manufacturers of this Country that the earths of these Kingdoms are unequal to those of Foreign Nations for the fabrication of china. Miles Mason, late of Fenchurch Street, London, having been a principal purchaser of Indian Porcelain, till the prohibition of that article by heavy duties, has established a Manufactory at Lane Delph, near Newcastle-under-Line, upon the principle of the Indian and Séve (*sic*) China. The former is now sold at the principal Shops only in the City of London, and in the Country as British Nankin. His article is warranted from the Manufactory to possess superior qualities to Indian Nankin China, being more beautiful as well as more durable, and not so liable to snip at the edges, more difficult to break, and refusable or unitable by heat, if broken. Being aware that to combat strong prejudices with success, something superior must be produced; he,

therefore, through the medium of his Wholesale Friends, proposes to renew or match the impaired or broken services of the Nobility and Gentry, when by a fair trial or conjunction with foreign china, he doubts not that these fears will be removed, and, in a short period, the Manufactories of Porcelain, by the patronage of the Nobility of this country, will rival, if not excel, those of foreign Nations.

N.B. The articles are stamped on the bottom of the large pieces, to prevent imposition.

G. 464. ASPARAGUS DISH, in common white ware, printed in blue with willow pattern; stamped, "MASON'S CAMBRIAN ARGIL."

G. 465. LARGE SOUP TUREEN, COVER, and STAND; quadrangular form, ornamented with green feather edge, and printed in red with border of flowers and view of an English castellated mansion in the centre; marked in red, "MASON'S PATENT IRONSTONE CHINA."

Mason's improvement, for which a patent was granted in 1813, consisted in using the scoria or slag of ironstone pounded and ground in water, in certain proportions, with flint, Cornwall stone and clay, and blue oxide of cobalt. (Specifications of Patents, No. 3724, July 23, 1813.)

G. 466. OCTAGONAL SPILL VASE in ironstone china. Height, 7¼ ins. Mounted on three claws resting on a circular base; edged in gold, and ornamented in oriental style, outlined in black printing and afterwards coloured. Unmarked.

G. 467. BASKET and STAND in white ware, printed in Chinese style in blue; open-work border; marked in blue, "Semi-china."

G. 468. CIRCULAR DISH, printed in flowers in colours, and edged in blue; inscribed, "Mohr and Smith, Patentees."

Spode's Ware.

[Wall Cases IX. and X.; lower shelves.]

The original Josiah Spode was apprenticed to Thomas Wheildon, of Fenton, in 1749. He conducted works at Stoke-upon-Trent, where he manufactured blue-printed, cream-coloured, and other wares. On his death in 1798, his son Josiah continued the business, and soon afterwards commenced the manufacture of porcelain, which he improved by introducing the use of bone-earth and of felspar. He died in 1827, and was succeeded in the business by his cousin, Josiah Spode, at whose death the works passed into the hands of Messrs. Copeland and Garrett. All the specimens of Spode's ware (unless otherwise expressed) were presented by Mr. Battam.

G. 469. INKSTAND, in form of antique Roman lamp; drab-coloured stone-ware, ornamented with white raised flowers; impressed mark, "SPODE."

G. 470. SMALL BASKET, with perforated cover; white stone-ware, with drab-coloured exterior, ornamented in white relief with Roman scroll border and frieze of morini; impressed mark.

G. 471. TWO-HANDLED VASE, of Roman shape. Height, 6¼ ins., diam. 4½ ins. Red terra-cotta with white raised figures representing females sacrificing; impressed mark.

G. 472. VASE and COVER, coated with blue jasper-dip, with raised floral ornament in white; cover surmounted by a poppy-capsule; impressed mark.

G. 473. SMALL BASKET in cane-coloured ware, ornamented in black relief with border of vine; cover pierced, unglazed; impressed mark.

G. 474. SPILL VASE, in marone glazed ware, with raised white leaves; impressed mark.
Presented by W. H. Goss, Esq.

G. 475. MUG, in Spode's agate ware; unmarked.
Presented by W. H. Goss, Esq.

G. 476. VASE (fig. 128), with perforated cover, or pastile burner, mounted on tripod stand formed by three dolphins on triangular base; red body, with black ornaments in relief; impressed mark.

Fig. 128.

G. 477. VASE, with double cover, one being perforated for cut flowers; red body, with Greek meander pattern, leaves, dolphin handles, &c., raised in black; impressed mark.

G. 478. COFFEE-POT and COVER, in red ware, with black Egyptian ornament in relief; cover surmounted by black crocodile; broken; impressed mark.

G. 479. TEA-POT and COVER, in buff coloured ware, with raised floral ornament in dull green; impressed mark.

G. 480. COFFEE POT and COVER, in coarse ware, with mottled green and yellow glaze; unmarked.

G. 481. SUGAR-BASIN and COVER, in white ware, blue glazed; ornamented with flowers in black under the glaze; unmarked.

G. 482. INKSTAND, mounted on *foot, with two bird's*-head handles; plain glazed chocolate-coloured ware; impressed mark.

G. 483. COMPOTIER and STAND in cream-coloured ware, painted with border of flowers; pierced edge, embossed wicker pattern; impressed mark.

G. 484. SOUP-PLATE, painted and gilt with conventional flowers in oriental style; impressed mark.
(*Not presented.*)

G. 485. PLATE, with plain centre, and border painted with small sprigs of flowers in oval compartments on lilac ground; impressed mark.
(*Not presented.*)

G. 486. PLATE, centre painted with armorial bearings, phœnix in proper colours on blue field, crest a crown; border with flowers painted and gilt in compartments on floriated ground; inscribed on back in purple, "Christophe King of

Hayte;" marked in purple, "SPODE."

(*Not presented.*)

G. 487. MUG and SAUCER, printed in blue in Chinese style with flying dragons; marked in blue, "SPODE."

(*Not presented.*)

G. 488. COFFEE CUP and SAUCER in Spode's porcelain, with gilt serpent handles, mounted on three claws, painted with flowers and richly bordered in blue and gold; unmarked.

G. 489. PASTILE BURNER, mounted on four claws; painted with band of roses, and richly gilt; pierced cover surmounted by flame-ornament; marked in red "SPODE."

G. 490. DOUBLE HANDLED Porcelain TAZZA, on square pedestal. Height, 5½ ins., diam., 7¼ ins. Painted with flowers on *bleu-de-roi* ground with gilt scale pattern; marked in red, "SPODE."

G. 490*a*. AMPHORA, 5¼ inches high; marone ground, with peacock and flowers in raised gold; marked in red, "SPODE, 3993."

G. 491. SMALL PORCELAIN BOTTLE, painted in colours with Chinese figures, &c.; marked in red, "SPODE, Felspar Porcelain."

G. 492. PORCELAIN DISH, richly painted and gilt, with border of the rose, shamrock, and thistle. Centre with star and motto, "ARGYLESHIRE, XCI.," surrounded by gilt inscriptions on blue ribands, "Peninsula, Pyrenees, Nivelle, Nive, Orthes, and Toulouse;" marked in purple, "SPODE, Felspar Porcelain."

(*Not presented.*)

WEST SIDE.

Modern Staffordshire Ware.

[Wall Cases XXXV. to XXXIX.]

G. 493. EARTHENWARE DISH, printed in black with scroll border, and coated with metallic lustre, now worn off. Impressed mark, "Copeland and Garrett."

G. 494. EARTHENWARE PLATE, with simple star-border printed in blue. Marked in blue, "Copeland and Garrett, Saxon Blue;" also stamped with name of firm and "Royal Opal."

G. 495. EARTHENWARE PLATE, printed in brown with Italian scene in centre, and border of flowers and birds in compartments. Marked in brown, "Copeland and Garrett, New Blanche," and stamped.

G. 496. PLATE in plain white porcelain, marked in green, "Copeland and Garrett," with crown and wreath.

G. 497. PORCELAIN PLATE, richly gilt with armorial bearings in centre, and embossed border with scroll ornament gilt on marone ground. Marked in green similar to last.

G. 498. PORCELAIN PLATE, with gilt feather edge, painted with border of flowers. Marked in green similar to last.

G. 499. PORCELAIN PLATE, gilt edged, and painted with border of calceolaria. Marked in green, "Copeland," with cypher of double C.

G. 500. PORCELAIN PLATE, gilt edged, and painted with peaches in centre, surrounded by border of peach blossom. Marked in green similar to last.

G. 501. EWER and BASIN in fine white earthenware, with simple gilt border. Marked in green, "Copeland and Garrett," with crown and wreath.

G. 502. PORCELAIN EWER, of elegant form, painted with flowers on primrose ground; gilt dragon handles; neck gilt and jewelled. Marked in green similar to last.

G. 503. } PORCELAIN DOOR-
G. 504. } HANDLES, embossed and gilt, and painted in style of Watteau. Marked in green similar to last.

G. 505. } PORCELAIN DOOR-
G. 506. } PANELS, oblong, painted with floral festoons and birds. Marked in green similar to last.

G. 507. PORCELAIN DOOR-PANEL, circular, painted with Watteau subject. Marked as last.

G. 508. PORCELAIN PANEL, framed; 19 ins. by 14 ins., with vase of flowers as specimen of painting on china. Marked, "Copeland and Garrett."

G. 509. RECTANGULAR PORCELAIN PLAQUE, painted with flowers in compartments, surrounded by richly-gilt scroll-work on turquoise-blue ground. Marked in green, "Copeland and Garrett," with crown and wreath.

G. 510. CIRCULAR PORCELAIN PLAQUE, painted in similar style; same mark.

G. 511. SQUARE PORCELAIN PLAQUE, painted with flowers on pale green ground. Marked in red, "COPELAND."

G. 512. CIRCULAR PLAQUE in white biscuit, with vase of flowers modelled in high relief; glazed in porcelain frame, painted pink, with raised scroll border in white and gold. Marked in green, "Copeland and Garrett," with wreath and *crown*.

G. 513. PORCELAIN VASE, or Spill-pot, with painted green body ornamented with coloured border of raised flowers, and terminated above with open wicker-work sides. Mark similar to last.

G. 514. PORCELAIN FINGER-PLATE for door, edged in gold, and painted with flowers on cream-coloured ground. Mark similar to last.

G. 515. PORCELAIN FINGER-PLATE, with embossed, gilt border; centre painted in style of Watteau. Mark similar to last.

G. 516. PORCELAIN CUP and SAUCER, white body embossed. Marked in green, "Copeland and Garrett," with crown.

G. 517. PORCELAIN CUP and SAUCER, embossed and gilt. Mark similar to last with addition of "PERIN."

G. 518. TWO-HANDLED PORCELAIN CUP and SAUCER, painted with fruit and flowers in compartments on turquoise-blue ground; handles and border gilt. Marked in green, "Copeland and Garrett," with wreath and crown.

G. 519. PORCELAIN CUP and SAUCER, painted with fruit in compartments on turquoise-blue ground, bordered in gold. Marked in green, "Copeland," with cypher of double C.

G. 520. PORCELAIN CUP and SAUCER, painted with floral festoons and bordered in turquoise-blue and gold. Mark similar to last.

G. 521. PORCELAIN CUP and SAUCER, with views on the Swiss lakes, painted in compartments on *bleu de roi* ground, gilt with diamond pattern. Mark similar to last.

G. 522. PORCELAIN CUP and SAUCER, painted with fruit in com-

partments on *bleu de roi* ground, with gilt borders. Mark similar to last.

G. 523. PORCELAIN CUP and SAUCER, gilt edged, and painted with border of heath. Mark similar to last, with the number 8350 in red.

G. 524. EARTHENWARE SLAB, in form of a framed picture; centre with specimen of transfer-printing in colours under the glaze; subject, Mulready's "Village Schoolmaster," or "The Last in;" frame embossed, painted in green, and gilt. Marked in brown, "F. and R. Pratt and Co., Fenton, Staffordshire."

G. 525. EARTHENWARE PLATE; centre painted with roses, border of yellow flowers on blue ground, gilt; edge raised and gilt. Marked in purple with royal arms and "C. Meigh and Sons," and in red "Earthenware."

G. 526. EARTHENWARE PLATE, with angel in white and gold on sky-blue ground sprinkled with gold stars; border of red flowers and green leaves on dead black ground. Marked with royal arms and "Earthenware."

G. 527. PORCELAIN PLATE, with bright orange-coloured border, edged in gold.

Presented by Messrs. Ridgway and Co.

The colour of this border is produced by chromate of lead.

G. 528. PORCELAIN PLATE. Centre painted with flowers; border with flowers in three compartments on blue ground, spotted with gold. Unmarked.

Nos. G. 524 to G. 528 from the Great Exhibition of 1851.

G. 529. EARTHENWARE DISH, with conventional forms of birds and flowers, painted and gilt. Minton's early mark in blue, with number 455.

G. 530. EARTHENWARE PLATE, with Chinese subject enamelled in colours and enriched with gilding. Minton's early mark in blue, with number 816.

G. 531. PORCELAIN PLATE. with border of passion-flower printed in blue. Marked in blue, "M & Co" (Minton), and stamped "BB. New Stone," &c.

G. 532. PORCELAIN PLATE, with pressed plaited border, printed with flowers in blue. Marked, "Felspar China, M (Minton), 1367."

G. 533. PORCELAIN PLATE, with raised gilt edge and floral festoons in gold on marone borders. Unmarked.

G. 534. PORCELAIN PLATE. Centre painted with heart's-ease, with green border pencilled with gold ovals, and pressed gilt edge. Marked in red, 7663. Minton's manufacture.

G. 535. PORCELAIN PLATE, painted with centre and border of cornflowers entwined round a blue hoop. Minton's ermine mark in gold.

G. 536. PORCELAIN PLATE, painted with centre and border of roses tied with blue ribands. Minton's ermine mark in gold.

G. 537. PORCELAIN PLATE, painted in centre with cupid-artists surrounded by gilt band of flowers on turquoise-blue ground. Border perforated, and painted with flowers in compartments. Minton's manufacture.

G. 538. PORCELAIN PLATE, painted in centre with birds, and border of flowers in compartments, on turquoise-blue ground enriched with gilt festoons. Minton's manufacture.

G. 539. PORCELAIN JAR, 6 inches high, in Chinese style, with incised ornament. Impressed mark, "MINTON."

G. 540. PORCELAIN MUG, with view of Lord Bathurst's seat at Cirencester, in black bat-printing on the glaze.

Presented by H. Minton, Esq.

In this process the print is transferred from the copper-plate to a bat of gelatine, and then on to the porcelain previously glazed. After the impression is thus printed in thick tar or oil, it is dusted over with enamel powder, which adheres to the tar, and the piece is then again fired.

G. 541. PORCELAIN DISH, circular, ornamented in purple bat-printing with groups of shells in centre, and in three compartments in the gilt hoop border. Minton's early mark in blue, with number 723.

G. 542. PORCELAIN CUP and SAUCER. Thin body, painted with flowers in compartments with gilt borders on *rose du Barri* ground. Minton's ermine mark in green.

G. 543. EARTHENWARE BASKET and STAND, with pierced sides, printed with the Chinese willow pattern in blue. Unmarked. Minton's manufacture.

This is one of the earliest examples of the printing of this well-known pattern.

G. 544. PESTLE and MORTAR, for chemical purposes, in hard porcelain. Minton's manufacture.

G. 545. EVAPORATING DISH for chemical purposes, in hard porcelain. Minton's manufacture.

G. 546. PAIR of GREYHOUNDS, chained together and seated on a fringed cushion. Modelled in white biscuit prepared from Lord Morley's china-clay, Dartmoor.

G. 547. VASE, with pierced neck; *rose du Barri* ground, gilt with floral ornament and scroll-work, and painted with group of flowers in oval medallion. Minton's manufacture.

G. 548. CELLINI BRACKET, in parian ware or statuary porcelain. Manufactured by Messrs. Minton and Co.

(Wall Case XXXV.)

G. 549. POUNDED DRY KAOLIN or china-clay, employed in the manufacture of tesseræ for tesselated pavements by Prosser's patent process.*

G. 550. to G. 551. THREE BOXES of TESSERÆ, variously coloured, manufactured by Prosser's process.

The dry clay, in a state of fine powder, is subjected to hydraulic pressure, and its particles are thus forced to cohere into the required shape without employing the agency of water. It is then vitrified by firing.

In the centre of the entrance hall of the Museum is an example of a tesselated pavement from a design founded on a Roman mosaic pavement discovered at Woodchester in Gloucestershire. This pavement was executed by Messrs. Minton and Co., with tesseræ of their manufacture.

G. 552. TILE made by Prosser's process, with royal arms painted and gilt on white glazed surface. Manufactured by Messrs. Minton.

G. 553. CUP in parian ware, ornamented outside with simple leaf border between two sets of treble blue lines produced by a patent process.† Marked in brown, "John Rickhuss and Charles Toft."

The following examples of modern tiles of Minton's manufacture are placed for convenience on the top shelf. Many of these are encaustic tiles. Each tile usually consists of three strata of clay, the superficial stratum being impressed with the pattern from a wooden mould. Coloured slips are then poured into the depressions, and, after partial drying, the surface is levelled down and the tile fired.

* Specification of Patents, No. 8548, June 17th, 1840.
† Specification of Patents, No. 2268, Oct. 25th, 1854.

G. 554. SLAB of unbaked red clay, impressed with geometric pattern.

G. 555. SIMILAR SLAB, with cavities filled in with yellow slip.

G. 556. SIMILAR SLAB, fired, forming a paving tile of two colours.

G. 557. ENCAUSTIC TILE, of two colours.

G. 558. ENCAUSTIC TILE, of three colours.

G. 559. ENCAUSTIC TILE, of four colours, forming part of a running border.

G. 560. ENCAUSTIC TILE, of five colours, forming part of a guilloche border.

G. 561. ENCAUSTIC TILE, with sacred monogram in yellow on blue ground, surrounded by ornamental border in colours.

G. 562. ENCAUSTIC TILE, one foot square, with pattern in five colours.

G. 563. OBLONG ENCAUSTIC PANEL, with ornament in three colours.

G. 564. QUARRY of four encaustic paving tiles, in white and blue.

G. 565. to G. 567. THREE WHITE TILES, ornamented in blue transfer-printing.

G. 568. ROOFING TILE, in green-glazed ware.

G. 569. ROOFING TILE, yellow glazed.

G. 570. to G. 573. FOUR STOVE TILES, pierced, embossed, and coloured.

G. 574. FRAMED PANEL, composed of Messrs. Minton's tiles, upon which a painting has been executed in monochrome and burnt in, by Mr. B. E. Duppa's process, so as to resemble a drawing in red chalk; surrounded by a border of Greek fret in coloured tesseræ.

(Near Case XXXIII.)

This specimen was exhibited in the Great Exhibition of 1851, and honourable mention of Mr. Duppa's process was made in the jury reports.

The following specimens of modern Staffordshire porcelain and pottery were all obtained from the Great Exhibition of 1851, and are grouped together in an adjacent pedestal case, No. 4.

Fig. 129.

G. 575. WINE-COOLER in porous cream-coloured earthenware (fig. 129). Height, 24 inches; diameter, 12 inches. Ornamented in relief with hunting subjects and festooned drapery pendent from foxes' heads. Cover surmounted by infants reaching grapes from a vase standing on a wine cask. Manufactured by Messrs. Minton and Co.

G. 576. HAREWOOD BOTTLE. Height, 15 inches; diameter, 6 inches. *Bleu de roi* ground, jewelled and gilt in vertical bands; neck tied with gilt ribbons. Design after an old Sèvres model. Manufactured by Messrs. Minton & Co.

G. 577. PORCELAIN EWER. Height, 15½ inches. Ground of a colour called *Queen's*, gilt and jewelled; painted with landscapes in compartments with gilt borders. Handles springing from female masks in dead gold; trefoil lip gilt and burnished. Manufactured by Alderman Copeland.

G. 578. MAJOLICA VASE and COVER. Height, 18 inches; diameter, 10½ inches. Body painted with amorini at play, and ornamented in relief with coloured festoons of vine and grapes, with musical trophies, pendent from ram's-head handles. Blue cover, surmounted by boy with goat and grapes. Manufactured by Messrs. Minton & Co.

G. 579. PORCELAIN BOTTLE, with stopper chained to ormolu mount. Height, 9½ inches. *Bleu de roi* ground, sprinkled with ermine spots; richly enamelled, jewelled, and gilt. Manufactured by Alderman Copeland.

G. 580. PORCELAIN VASE. Height, 15½ inches; diameter, 6½ inches. Turquoise-blue ground, painted in pink monochrome, with cupids and flowers in compartments with gilt borders. Strap shaped handle in *white* and gold, beaded. Cover blue and white, beaded. Manufactured by Messrs. Minton & Co.

G. 581. PORCELAIN VASE. Height, 12 inches; diameter, 5 inches. *Rose du Barri* ground, with musical emblems and flowers painted in medallions with chased gilt borders. Neck and foot ornamented with floral bands. Cover and rim perforated and gilt. Handles in form of female masks in dead gold. Manufactured by Alderman Copeland.

G. 582. WINE-COOLER in cream-coloured porous earthenware. Height, 19 inches; diameter, 12 inches. Body ornamented in low relief with Bacchanalian figures. Cover surmounted by infants placed back to back with clasped hands. Manufactured by Messrs. Meigh and Sons.

G. 583. BUST of JUNO, after the antique, in statuary porcelain or parian ware (fig. 130). Height, 24 inches. Manufactured by Alderman Copeland.

Fig. 130.

G. 584. Bust of Lady Clementina Villiers, by McDonald, in statuary porcelain. Height, 6¼ inches.

Manufactured and presented by the late Alderman Copeland.

G. 585 Two-handled Cup in parian ware. Height, 4¼ inches; diameter, 3¾ inches. Copy of a silver cup found at Pompeii, now in the Museo Borbonico at Naples. Manufactured by Messrs. Minton & Co.

G. 586. Two-handled Cup in parian, with ivy-leaf border in relief. Height, 4 inches; diameter, 3½ inches. Manufactured by Messrs. Minton & Co.

G. 587. Copy of the Portland or Barberini Vase in parian ware. Manufactured by Alderman Copeland. (For a notice of the Portland vase, see p. 125.)

G. 588. Statuette in parian ware: *Dorothea*, by John Bell. Height, 14½ inches. Manufactured by Messrs. Minton & Co.

G. 589. Statuette in parian ware: *Narcissus*, by John Gibson, R.A. Modelled by E. B. Stephen. Height, 12 inches.

Manufactured and presented by the late Alderman Copeland.

G. 590. Statuette in parian ware: *Innocence*, by J. H. Foley, R.A. Height, 16½ inches.

Manufactured and presented by the late Alderman Copeland.

G. 591. Cellini Vase and Stand in parian ware, touched with gold. Height of ewer, 13 inches; diameter of stand, 10½ inches. Manufactured by Messrs. Minton & Co.

G. 592. Large Vase in parian ware (fig. 131). Height, 34 inches. Ornamented with flowers modelled in high relief. Manufactured by Messrs. T. and R. Boote, Burslem.

Fig. 131.

G. 593. Large double-handled Vase on Pedestal, in modern Wedgwood ware (fig. 132). Height, 31 inches. Dark blue ground, ornamented with white figures in relief. On the body of the vase a classic sacrificial procession; on the pedestal, floral festoons and trophies pendent from lions' masks. Manufactured by Messrs. Wedgwood and Sons.

Fig. 132.

The remaining specimens of Staffordshire ware, consisting for the most part of framed plaques, are distributed according to the available space over the walls in the neighbourhood of the cases containing the ceramic collection, partly on the eastern and partly on the western side of the Museum.

G. 594. FRAMED PANEL, or rectangular porcelain plaque, ornamented with border of ternate leaves in white on blue ground. Copeland's mark.

(Near Case XXXIV.)

G. 595. FRAMED PANEL, with arabesque ornament after an Alhambra pattern. Painted in yellow on ground of blue and red. Copeland and Garrett's mark.

(Near Case XXXIV.)

G. 596. FRAMED PANEL, painted with group of orchidaceous flowers in proper colours. Copeland's mark.

(Near Case XXXIV.)

G. 597. FRAMED PANEL, painted with view of Kocheim on the Moselle, within border of gilt scroll-work. Copeland and Garrett's mark.

(Near Case XXXI.)

G. 598. FRAMED PANEL, painted

with vase of flowers in gilt-edged compartment, and with floral festoons on primrose-coloured base, surrounded by gilt borders on pink ground. Copeland's mark.

(Near Case XIV.)

G. 599. FRAMED PANEL, with geometric tile-pattern in yellow, on blue and brown ground. Copeland's mark.

(Near Case XI.)

G. 600. FRAMED PANEL, with geometric ornament in blue and white. Unmarked.

(Near Case XI.)

G. 601. FRAMED PANEL, with scroll ornament in blue touched with gold. Unmarked.

(Near Case XI.)

G. 602. FRAMED PANEL, painted with group of flowers in proper colours. Copeland's mark.

(Near Case I.)

G. 603. FRAMED PANEL, painted with Watteau subject in compartment with richly gilt edge, surrounded by an ivory-coloured border edged in gold, on a turquoise-blue ground. Copeland and Garrett's mark.

(Near Case I.)

G. 604. PEDESTAL of PERFORATED ENAMELLED BRICKS, painted on blue ground, with flowers and fruit tied with pink ribands. Manufactured by Messrs. Minton and Co.

(Near Case XIV.)

G. 605. PEDESTAL of PERFORATED ENAMELLED BRICKS (fig. 133), painted with scroll-work, griffins, masks, &c., in white shaded with green on lilac ground; yellow egg-and-tongue border. Manufactured by Messrs. Minton and Co.

(Near Case XXXI.)

Fig. 133.

G. 606. PEDESTAL of PERFORATED ENAMELLED BRICKS, with Cupid and pandean pipe painted in circular centre, and surrounded by coloured ornamental border. Manufactured by Messrs. Minton and Co.
(Near Case XLIV.)

G. 607. MAJOLICA FRIEZE (fig. 134), painted in colours after the style of Luca della Robbia's ware. Manufactured by Messrs. Minton and Co.
(On plinth near Case 55.)

Fig. 134.

G. 608. MAJOLICA FLOWER-POT and STAND. Height, 16 inches; diameter, 16 inches. Turquoise-blue ground, ornamented in relief with coloured festoons of flowers pendent from two ram's-head handles; flanged rim with egg-and-tongue border. Manufactured by Messrs. Minton and Co.

This specimen is placed on a pedestal at the head of the eastern staircase leading to the first gallery.

G. 609. LARGE FIGURE of GALATEA in terra-cotta (fig. 135). Height, 6 feet 6 inches.

Manufactured and presented by Messrs. Minton and Co.

This figure was exhibited in the Great Exhibition of 1851. On account of its size it is placed in the hall, where it stands on a pedestal near the eastern wall.

N.B.—For examples of modern Majolica ware from the Benthall Works, in Shropshire, see Addenda, p. 253.

Fig. 135.

Bow Porcelain.

[Wall Case XI.]

It is generally believed that the porcelain works at Stratford-le-Bow were established about the year 1730, but the earliest authentic information concerning the factory does not commence until several years later. In 1744 a sample of china-clay was brought to this country from America; and, with the view of introducing this material at Bow, a patent was taken out in December of that year by Edward Heylyn, of Bow, merchant, and Thomas Frye, of West Ham, Essex, painter, for the production of a porcelain containing among other ingredients "an earth, "the produce of the Cherokee nation in America, called by the natives "*unaker*." The Mr. Frye here mentioned became manager of the Bow works, and during the subsequent partnership of Messrs. Weatherby and Crowther, assiduously devoted himself to the improvement of the manufacture, but in 1759 he was compelled to abandon the employment in consequence of ill-health.

Some interesting particulars respecting the Bow factory are furnished by a document in the cover of a box in the British Museum containing a punch-bowl. The writing is signed "T. Craft, 1790," and informs us that "this bowl was made at the Bow china manufactory about the year "1760, and painted there by Mr. Thomas Craft. My cipher is in the "bottom; it is painted in what we used to call the old Japan taste, a "taste at the time much esteemed by the then Duke of Argyle; there is "nearly two pennyweight of gold, about 15 shillings; I had it in hand "at different times about three months; about two weeks' time was "bestowed upon it; it could not have been manufactured, &c. for less than "4*l*. There is not its similitude. I took it in a box to Kentish Town, and "had it burnt there in Mr. Gyles's kiln; cost me 3*s*. . . . . "The above manufactory was carried on many years under the firm of "Messrs. Crowther and Weatherby, whose names were known almost "over the world. They employed 300 persons; about 90 painters (of "whom I was one), and about 200 turners, throwers, &c., were employed "under one roof. The model of the buildings was taken from that at "Canton in China."

Mr. Weatherby, one of the partners in the business at Bow, died in 1762, and the next year Crowther became a bankrupt, but he appears to have retained an interest in the works for some time after his failure. In 1777 Crowther was elected into Morden College, Blackheath, and Craft, writing in 1790, says, "I am the only person of all those employed there who annually visit him." About the year 1775 or 1776 the Bow works were sold to Mr. William Duesbury, and the moulds and models were removed to Derby. The factory was afterwards converted into chemical works, and in Craft's time was used as a manufactory of turpentine.

Mr. Chaffers has published * some interesting extracts from certain account books and other documents used at the old Bow works, and now in the possession of Lady Charlotte Schreiber. These records date from the commencement of the partnership between Crowther and Weatherby

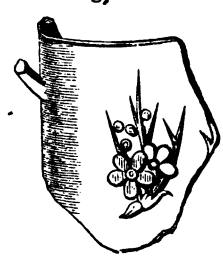
* "Marks and Monograms on Pottery and Porcelain," by W. Chaffers, 3rd edition, 1870, p. 680, *et seq.*

in 1750–1, O.S., and not only show the large amount of business which was at one time carried on at the Bow works, but incidentally afford much information as to the character of the ware produced. But the most valuable information on this subject is that which has been derived from the recent excavations at Bow by Messrs. Bell and Black. While trenching a drain from the lucifer-match manufactory to the sewer, the workmen found, at a depth of 8 or 10 feet from the surface, a number of fragments of old Bow porcelain and portions of saggers, the find being probably on the site of an old kiln. Some of these pieces, presented by Mr. Bell, are exhibited in this collection, and by showing the character of the Bow paste and the style of ornamentation have led to the identification of many pieces of Bow china which had previously been wrongly attributed to other manufactories. While some of the specimens brought to light by these excavations are coated with a glaze, most of them are merely in the state of biscuit, and are therefore cast-away fragments of unfinished ware. Many of the pieces of unglazed porcelain are painted in cobalt blue. Moreover there is evidence to show that as early as 1756 the managers of the Bow works availed themselves of Sadler and Green's method of transfer-printing, and occasionally sent their porcelain to be decorated at Liverpool. Among the productions of the old Bow factory may be especially noted its china statuettes. It is known that John Bacon, the sculptor, worked at one time for Bow; and we learn from "Nollekens and his Times" that Moser, the keeper of the Royal Academy, also modelled for the Bow factory.

But little is known regarding the materials employed at Bow. According to Heylyn and Frye's patent, granted in 1744, one part of potash or pearl-ash is mixed with one part of sand or flint and a variable proportion of "unaker." In a subsequent patent taken out by Frye alone in 1749, no mention is made of the unaker; but it is said that a "virgin earth," produced by the calcination of certain "animals, vegetables, and fossils," is mixed with flint or sand and a certain proportion of pipeclay. The glaze is described as made of saltpetre, red-lead, and sand, with the addition of white-lead and smalts.

It is difficult to ascertain definitely what marks were employed at Bow. The triangle formerly attributed to this manufactory is now generally believed to have been used at Chelsea. In the absence, therefore, of well-authenticated marks the identification of a given piece must depend on the character of the body and the style of ornamentation. It should consequently be understood that, in the present state of our knowledge on this subject, the reference of the following pieces to the Bow manufactory is in many cases only provisional.

Fig. 136.



H. 1. Fragment of a Cup in biscuit ware, ornamented with embossed five-petalled flower, known as the May-flower or hawthorn pattern (fig. 136). Found in excavations at the works of Messrs. Bell and Black, at Bow, 1868.
Presented by Mr. Bell.

H. 2. CUP in white glazed porcelain, with embossed May-flower pattern.

H. 3. CUP in white glazed porcelain, with embossed May-flower pattern.

Presented by Mr. Brooks.

H. 4. CUP in white glazed porcelain, embossed with a different form of the May-flower pattern.

It may be mentioned that moulds corresponding with the raised ornament on this piece have been found at Bow.

H. 5. KNIFE-HANDLE in biscuit ware, ornamented with embossed scroll-work. Found in excavations at the works of Messrs. Bell and Black, at Bow, 1868.

Presented by Mr. Bell.

H. 6. KNIFE-HANDLE in white glazed porcelain, embossed with May-flower pattern. Broken.

H. 7. KNIFE-HANDLE in white glazed porcelain, with embossed floral ornament.

Nos. H. 6 *and* H. 7 *presented by C. Schreiber, Esq., M.P., and Lady Charlotte Schreiber.*

H. 8. to H. 13. SIX KNIFE-HANDLES in white glazed porcelain, variously embossed.

H. 14. KNIFE-HANDLE in white porcelain, painted with flowers in blue.

H. 15. KNIFE-HANDLE in white glazed porcelain, painted in blue under the glaze with flowers in Chinese style.

H. 16. H. 17. KNIFE and FORK mounted in handles of white glazed porcelain, with embossed May-flower pattern.

H. 18. HANDLE for walking-cane, in white glazed porcelain, ribbed.

H. 19. CIRCULAR DISC of Frit, found in excavations at Bow.

H. 20. FRAGMENT of SAGGER, with clout nail, found on the site of an old kiln at Bow.

H. 21. CYLINDER of biscuit ware, found at Bow.

H. 19 *to H.* 21 *presented by Mr. Bell.*

H. 22. BASIN, ornamented outside with embossed leaves having the veins coloured red and the margins green, and painted outside with fruit, flowers, and insects in dull colours over the glaze. Impressed mark attributed to Bow.

H. 23. PLATE, enamelled with flowers, with embossed May-flower border.

H. 24. PLATE, with narrow border of enamelled flowers, and centre ornamented with transfer-printing in red; subject, a garden scene with gallant kissing his lady's hand.

This is a well-known subject, often found on pieces of early printed Worcester porcelain.

H. 25. DISH, of thick body, painted with deep blue ground, leaving eight compartments occupied by Chinese subjects in blue on white ground; back moulded with shell pattern.

Bandinel collection.

H. 26. INKSTAND (fig. 137). Diameter, 4 inches; height, 1½ inch. Body of white glazed porcelain, with characteristic Bow flowers enamelled on the sides, and an inscription running round the top, "MADE AT NEW CANTON, 1751."

Exhibited by Mr. Brooks.

Mr. Chaffers has shown that the Bow works were known in the early stages of their existence as "New Canton," and publishes from the memorandum books in

Fig. 137.

Lady Schreiber's possession "A Weekly "Account of Bisket ware made at New "Canton" during the first six months of 1754. It will be noticed that Craft in his memorandum, preserved in the British Museum (p. 145), distinctly says that the works were built on the model of those at Canton in China. A similar specimen, but dated one year earlier, is in the possession of the Worcester Porcelain Company.

H. 27. TRIPLE SALT-CELLAR, formed of three valves of *Tridacna*, grouped with shells, coral, and sea-weed, touched in colours; the interior of each clam shell painted with flowers.

This piece is similar in its style of grouping to certain salt-cellars of Plymouth porcelain, but fragments identical with parts of this specimen have been found in the recent excavations at Bow.

H. 28. SALT-CELLAR, formed of small bowl with gilt edge, covered externally with raised flowers painted blue and yellow, and mounted on three feet formed of lions' masks and claws.

H. 29. SAUCE-BOAT in white glazed porcelain, with embossed May-flower pattern, mounted on three feet formed of lions' heads and claws; handle terminated in mask looking into the boat.

H. 30. SAUCE BOAT, painted with flowers in Chinese style in blue under the glaze; mounted on three feet formed of lions' heads and *claws; handle* terminating in mask.

H. 31. DESSERT DISH, in form of scallop-shell, with narrow border in red and gold, and centre painted and gilt with pair of quails and conventional foliage in oriental style.

Presented by Mr. Brooks.

H. 32. CUP and SAUCER, with fluted border, painted and gilt with quail pattern similar to that on last piece.

H. 33. BASIN, painted over the glaze with quail pattern; the reverse painted with flowers and scroll-work.

H. 34. COMPOTIER, with embossed border painted with pink quatrefoils and blue shells; centre painted with exotic birds.

H. 35. } PAIR of male and female
H. 36. } figures in white glazed porcelain, 7½ inches high.

H. 37. SEATED FIGURE of an aged female, in white glazed porcelain; right arm and left hand broken.

H. 38. to H. 40. } THREE FEMALE FIGURES, in coarse porcelain with discoloured glaze.

H. 41. SMALL TUREEN and COVER, in white glazed porcelain, with embossed acorns and oak-leaves; rustic handles.

H. 42. SAUCE-BOAT, with pressed leaf pattern on the outside, ena-

melled with flowers; marked in red with an arrow having an annulet on the shaft.

H. 43. SAUCE-BOAT, with birds painted in pressed panels.

H. 44. SAUCE-BOAT, painted and gilt with Chinese figure subject.

H. 45. SCENT BOTTLE, ornamented with flowers modelled in high relief and coloured.

H. 46. HEXAGONAL PEDESTAL embossed with floral festoons and painted with sprigs of flowers in alternate compartments.

H. 47. DESSERT DISH in white glazed porcelain with fluted sides and embossed floral border.

H. 48. DESSERT DISH, octagonal, with embossed wicker pattern, and pierced scroll handles.

H. 49. to H. 50. PAIR of ORNAMENTS in plain white glazed porcelain; cow couchant beneath a tree which originally supported nozzle for candle.

H. 51. JUG in white glazed porcelain, embossed with classic female figures in compartments, surrounded by scroll-work and flowers springing from a base of shells.

H. 52. JUG in thick plain white glazed porcelain.

CHELSEA PORCELAIN.

[Wall Cases XII. to XIV.]

From a passage in a work by Dr. Martin Lister, published in 1699,* it has been inferred that an inferior kind of porcelain, probably at first little better than opaque glass, was manufactured at Chelsea prior to that date. Whatever construction may be put upon this passage, it is useful as probably pointing to the origin of the porcelain works there established, it being well known that pounded glass entered into the composition of the earlier so-called porcelain of Chelsea. From the fact of a manufactory of glass having been established there by some Venetians, under the auspices of the Duke of Buckingham, in 1676, the making of opaque glass would be well understood, and it may have happened that a transition was effected from this manufacture through that of pounded glass, clay, and sand, to the porcelain subsequently made.

Although the exact date of the establishment of the porcelain works at Chelsea has not been ascertained, it was probably as early as 1745. A cream jug marked with an impressed triangle, in the possession of Mr. W. Russell, is dated "Chelsea, 1745," and it has been supposed that the manufacture had then obtained considerable importance, for the French Company, which at that time desired the exclusive privilege of establishing a porcelain manufactory at Vincennes (subsequently that of Sèvres) urged the benefit that France would gain by having works which should exclude the German and *English* porcelain. It has been suggested, however, that this reference may have been made to the productions of Bow rather than to those of Chelsea. Be that as it may, it is known that in 1747 several persons came from the Staffordshire potteries, and settled at the Chelsea works.

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* "Journey to Paris in the year 1698." By Dr. Martin Lister, London, 1699.

While the sand for the Chelsea porcelain was obtained from the Isle of Wight (p. 14), and perhaps some of the clay also, it may easily have happened that the clays of Poole in Dorset were likewise employed. These clays were then well known (p. 5), and would scarcely be neglected by the Chelsea manufacturers. The supposition that kaolin was actually imported from China for these works is improbable, but it may have originated from the fact that plain porcelain, according to some authorities, was imported from China to be enamelled at Chelsea.

The Chelsea works were especially patronized by George II., who procured models, workmen, and even materials from Saxony and Brunswick for them.* The period of the greatest excellence of the Chelsea porcelain is considered to have been between 1750 and 1765, and there was then so much demand for it, that dealers are described as surrounding the doors of the works, and purchasing the pieces as soon as they were fired. Large prices were given for this porcelain,† and much skill was exhibited in the enamelling. The claret colour has been considered as the most remarkable of those employed; some other enamels are, however, equally good.

As regards marks, the earliest pieces of Chelsea porcelain do not appear to have had any. The impressed triangle, the embossed oval with raised anchor upon it , and the red anchor with the dagger ⚓ † are inferred to be among the earliest marks,‡ after which followed the anchor alone ⚓, either painted over the glaze, commonly in red, or gilt; the latter usually affixed to the best porcelain. Two anchors were sometimes employed.

According to Faulkner (*History of Chelsea*), the Chelsea china manufactory was situated at the corner of Justice Walk, and occupied the houses at the upper end of Lawrence Street. Several of the large old houses were used as show rooms. These houses were long since pulled down, and others erected in their place. In July 1843, upon digging the foundation for Cheyne Row West, extensive remains of the Chelsea porcelain works were found, including large quantities of broken vases, figures, &c.

It would appear from a memorial§ presented to the government that the proprietor or conductor of the works, styled "the Undertaker of the Chelsea Manufacture of Porcelain Ware," was "a silversmith by profession," who, "from a casual acquaintance with a chymist who had some "knowledge this way, was tempted to a trial, which upon the progress he "made, he was encouraged to pursue with great labour and expense." Unfortunately the date of the memorial is not given, but it may be

* The celebrated Dr. Johnson is mentioned in Faulkner's *History of Chelsea*, not only as taking great interest in the Chelsea porcelain works, but also as experimenting at them, though apparently with no great success.

† Mr. Marryat (*History of Pottery and Porcelain*, 3rd ed., p. 372) quotes part of a letter from Horace Walpole to Sir Horace Mann, of the 4th March 1763, in which he mentions having seen a set of Chelsea porcelain about to be presented by the King and Queen to the Duke of Mecklenburg, which was to cost 1,200*l*.

‡ It may be doubted whether the anchor associated with the dagger should be referred to Chelsea or to Bow.

§ Lansdowwne MSS., No. 829, fol. 21, printed at length in Marryat's "History of Pottery and Porcelain," 3rd ed., p. 373.

supposed to have been sent in not long before the works were closed. It mentions that at least one hundred persons were then employed, "of "which is a nursery of thirty lads taken from the parishes and charity "schools, and bred to designing and painting, arts very much wanted here, "and which are of the greatest use in our silk and linen manufactures." The memorialist complains sadly of the smuggling sales of the Dresden porcelain, allowed to be imported for private use, but otherwise prohibited, pointing out "that a certain foreign minister's house has been for a course "of years a warehouse for this commerce, and the large parcel advertized "for public sale on the seventh of next month is come, or is to come, from "thence." It appears that this Dresden porcelain paid only eightpence by the pound when entered for private use, so that the competition established became finally very injurious to the Chelsea manufacture. The memorialist speaks of having sold to the value of more than 3,500*l.* during the previous winter, "which," he adds, "is a great deal, considering the thing "is new, and is of so great extent that it has been beyond the reach of his "industry to produce such complete assortments as are required in a "variety of ways."

As early as 1764 attempts were made by Mr. Nicholas Sprimont, for some time the proprietor of the Chelsea works, to dispose of the manufactory and its appurtenances. In 1769 the works passed into the hands of Mr. William Duesbury, of Derby, and for some time he carried on the business at Chelsea and Derby simultaneously, and the Chelsea works were not finally discontinued until the year 1784, when the available plant was transferred to Derby, whither many of the workmen and artists also proceeded.

I. 1. SMALL TEA-POT in porcelain, with surface moulded in form of leaves; white ground painted with flowers and insects; incised mark, a triangle.

I. 2. SMALL SUCRIER, with fluted sides and base; white porcelain painted with butterflies and other insects and simple flowers; incised mark, a triangle.

I. 3. SMALL CREAM JUG in white porcelain, painted with flowers and insects; ornamented with two white goats in relief at the base, and bee modelled on front under the spout; handle of rustic pattern with raised flowers, coloured; incised mark, a triangle.

I. 4. SMALL CREAM JUG, of similar form to last piece, in plain white porcelain; the bee broken off; incised mark, a triangle.

Nos. I. 1 *to* I. 4 *from the Bandinel collection, presented by Dr. Page.*

These specimens were formerly attributed to Bow, but a cream mug in the possession of Mr. W. Russell, and another in the possession of Mr. T. Thornhill, jun., both of similar paste and pattern to Nos. I. 3 and 4, although unpainted, bear the triangle, together with "*Chelsea*, 1745," indented in the paste; and there is also other evidence to show that the triangle was used as a Chelsea mark.* The two cream jugs here exhibited were formerly in the Strawberry Hill collection.

I. 5. FIGURE of INFANT, with basket of flowers, painted and gilt; a small triangle is incised in the scroll-work base.

I. 6. FIGURE of INFANT, with basket of flowers, in white porcelain touched with gold; unmarked.

I. 7. BUST of the Duke of Cumberland, in plain white glazed porcelain, unmarked.

Presented by C. H. Carruthers, Esq.

William Duke of Cumberland is known to have been a patron, if not in part proprietor of the Chelsea porcelain works. He was born in 1721 and died in 1765.

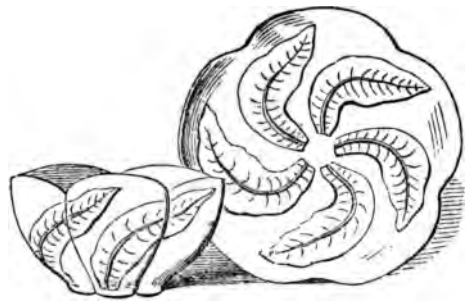
* *See* Mr. A. W. Franks' "Notes on the Manufacture of Porcelain at Chelsea."

I. 8. FIGURE of a BIRD in white porcelain, distorted in the firing, and bearing traces of having been painted; mark, the embossed oval with raised anchor.

I. 9. SQUARE PEDESTAL or ALTAR in white porcelain with embossed flowers; mark, the raised oval and anchor.

I. 10. CUP and SAUCER (fig. 138), edged in brown, and painted with leaves in bluish green with yellow midrib and brown veins; mark, the embossed oval and raised anchor.

Fig. 138.



I. 11. CUP, painted with flowers in purple camaieu; marked with anchor in red.

I. 12. FOUR-LOBED CUP and SAUCER with well for rim of cup, edged in brown and painted with flowers; marked with anchor in red.

I. 13. BOTTLE, with four-lobed body and flattened sides, painted with flowers and insects, and ornamented with vine and squirrels in relief round the neck; unmarked.

Presented by S. Addington, Esq.

I. 14. BOTTLE of similar form to last piece, painted with conventional flowers in blue under the glaze; unmarked.

I. 15. COMPOTIER, octagonal, coarsely painted with fruit and insects; marked with anchor in brown.

I. 16. COMPOTIER, lozenge shaped with lobed border, painted with flowers in green camaieu; marked with anchor in purple.

I. 17. COMPOTIER, circular, with lobed border, painted with red fox and conventional design in Chinese style; marked with anchor in red.

(Placed on top shelf).

I. 18. COMPOTIER, circular, with gilt lobed edge, coarsely enamelled with flowers on yellow ground; marked with anchor in brown.

I. 19. COMPOTIER, circular, with shaped edge, dull red border, and flowers enamelled on yellow ground; marked with anchor in brown.

I. 20. COMPOTIER, circular, edged in brown and painted with fruit; marked with anchor in brown.

I. 21. PLATE, painted with conventional flowers and insects; marked with anchor in red.

I. 22. PLATE, with blue edge and crimped border, coarsely painted with fruit; marked with anchor in brown.

I. 23. PLATE, painted with flowers, with raised scroll edge in brown and green; marked with anchor in brown.

The body of this plate is thick; the basal rim, like that of many other pieces, has been ground smooth; and certain

defects in the paste are concealed by having sprigs of flowers painted over them. Many of these pieces exhibit on the back three strongly defined marks produced by contact with the supports on which they rested during firing.

I. 24. PLATE, with embossed floral ornament; edged in brown and painted with sprigs of flowers; unmarked.

I. 25. LARGE OCTAGONAL DISH, with pressed border of diamonds and quatrefoils, painted with flowers and insects; marked with raised anchor in embossed oval medallion.

I. 26. VASE and COVER, 11½ inches high, ornamented with coloured raised flowers and female masks, and painted with insects; the shoulder and cover pierced with diamond pattern, having coloured bosses at the angles; unmarked.

I. 27. VASE and COVER, 9¼ inches high, ornamented with coloured raised flowers and female masks; border pierced, with coloured bosses at the angles; marked with anchor in gold.

I. 28. FIGURE of a CARPENTER, with bag of tools (fig. 139), 8 inches high, coloured; marked with anchor in red.

Fig. 139.

I. 29. } PAIR of male and female
I. 30. } FIGURES, 11½ inches high, painted and gilt; mounted on scroll-work bases, and surrounded by raised flowers supporting nozzles for candles; unmarked.

I. 31. FIGURE, 6½ inches high, painted and gilt; a youth with dog begging at his side; marked in blue under the glaze with a capital cursive *B* obscured by having an anchor and dagger painted in red over the glaze; broken.

Burns collection.

The mark of an anchor and dagger in red, occurring on this and the four following pieces, has sometimes been regarded as a Worcester and sometimes as an early Chelsea mark. It has also been recently attributed to Bow, an attribution which receives some support from the letter *B* marked upon this figure.

I. 32. FIGURE of a youth, 7½ inches high, painted and gilt; marked in red with anchor and dagger.

Burns collection.

I. 33. } PAIR of male and female
I. 34. } FIGURES, 6 inches high, painted and gilt; the man singing while the female (fig. 140) plays

Fig. 140.

the *pastorella;* each figure marked in red with anchor and dagger.

The pastorella represented in the figure was a musical instrument in general use previously to the introduction of the *spinet.*

I. 35. TWO-HANDLED CUP and SAUCER, with diamond-pressed body and broad pea-green border; marked in red with anchor and dagger.

I. 36. TWO-HANDLED CUP and SAUCER, with floral ornament and gilt scrolls; marked with gold anchor.

I. 37. COVERED TWO-HANDLED CUP and SAUCER, with pressed scale pattern, painted with flowers; marked with anchor in brown.

I. 38. CUP and SAUCER, with gilt rim, painted with birds; marked with anchor in gold.

The glaze is accumulated around the basal rim in "tears;" in most specimens the inequalities of the glaze are removed by the rim having been ground smooth.

I. 39. CUP and SAUCER, with ribbed and fluted body, painted with landscape in purple monochrome; marked with anchor in red.

I. 40. CUP and SAUCER of Oriental porcelain, painted with birds at Chelsea.

Presented by A. W. Franks, Esq., M.A., F.S.A.

I. 41. SAUCER of Oriental porcelain, painted with birds at Chelsea.

Presented by A. W. Franks, Esq., M.A.

It is said that plain porcelain was imported from China to be decorated at Chelsea, and this may have given rise to the popular belief that China clay was surreptitiously procured from China for use at this manufactory.

I. 42. SAUCER of Oriental porcelain, with blue and gold border, painted with birds.

I. 43. BASIN, with embossed floral ornament, border of painted flowers, and blue and gold rim; marked *with anchor* in gold.

I. 44. SMALL VASE, 6½ inches high (fig. 141); blue ground enriched with gilding, with peacocks painted in heart-shaped compartments; marked with two anchors in gold, one being inverted with respect to the other.

Fig. 141.

I. 45. COVERED VESSEL in form of a bundle of asparagus, coloured; marked in red with anchor and No. 63.

I. 46. COVERED VESSEL in form of a melon, coloured; marked in red with anchor and No. 9.

I. 47. } TWO PLATES, with sur-
I. 48. } faces covered with painted roses, tulips, and other flowers; marked with anchor in gold.

I. 49. PLATE painted with exotic birds; marked with anchor in gold.

I. 50. OCTAGONAL DISH, with embossed floral ornament and painted flowers; marked with anchor in red.

I. 51. CIRCULAR DISH with fluted border, painted with flowers and insects; marked with anchor in red.

I. 52. DESSERT DISH, leaf-shaped, with gilt edge, and painted with flowers; marked with anchor in gold.

I. 53. DESSERT DISH, leaf-shaped, coloured; marked with anchor in red.

I. 54. DESSERT DISH in faience; leaf shaped, with brown veins and green and yellow margins.

I. 55. DESSERT DISH, heart-shaped, coarsely painted with flowers and fruit; unmarked.

I. 56. DESSERT DISH, heart-shaped, gilt edged, painted with small roses and leaf border in violet with green festoons; marked with anchor in red.

I. 57. DESSERT DISH, heart-shaped, painted with fruit and insects; marked with anchor in red.

I. 58. LARGE CIRCULAR DISH, with embossed border, and painted with flowers; marked with anchor in red.

I. 59. PLATE in faience, painted with fruit; unmarked.

I. 60. PLATE, painted with birds and flowers in blue; marked with blue anchor.

I. 61. LARGE VESSEL in form of a swan, modelled in white porcelain, with flowers painted round the rim, on to which the cover fits.

This large specimen stands outside, on the top of Case XIV.

DERBY PORCELAIN.

[Wall Cases XV. to XIX.]

The old Derby porcelain works, situated on the Nottingham Road, just beyond St. Mary's Bridge, were founded in 1751 by Mr. William Duesbury. Long prior to that date, however, a large pottery had been established at Cock Pit Hill, and was at one time conducted by Messrs. Heath: it is believed, indeed, that even porcelain had been made there on a limited scale. The articles first manufactured by Duesbury appear to have been chiefly small chimney ornaments, and old people at Derby still have a traditional recollection of little figures of lambs in white porcelain as among the earliest of these productions. Gradually, however, workmen and artists were obtained from Chelsea, and it has been already stated (p. 150), that Duesbury purchased the Chelsea works in 1769. The two establishments being thus united under one proprietor, the Derby was associated with the Chelsea anchor, and the porcelain bearing this composite mark became known as "Chelsea-Derby." When the Chelsea works were abandoned in 1784, the moulds and models were transferred to Derby, and it is believed that at least a portion of the plant from Bow was also transported thither. Some of the best workmen and artists from both Chelsea and Bow are well known to have settled at Derby.

Upon the decease of Mr. William Duesbury, his son carried on the Derby porcelain works for many years, in concert during part of the time with Mr. Michael Kean. Both are stated to have been good artists. A third Mr. Duesbury succeeded these partners, and subsequently the works became the property of Mr. Robert Bloor. They were finally closed in

1848, and after their demolition a convent, now destroyed, was erected on the site.

On the closing of the old works, a small manufactory was established in King Street by Mr. Locker, who had for many years been manager to Bloor. He was succeeded by Messrs. Stevenson, Sharp, and Co., and the firm subsequently became Stevenson and Hancock. At present the factory is in the hands of Mr. Sampson Hancock.

There is much uncertainty respecting the materials at first employed at the old Derby porcelain works. It is not improbable, however, that they were much the same as those employed at Chelsea, seeing that Derby owed much of its importance to the acquisition of workmen from Chelsea and Bow. The Bideford clay was probably known at Derby even when the works were first established, as that clay was then much used in the Staffordshire potteries, and the ware made with it was in great demand between 1730 and 1741. The Cornish kaolins and china-stones, which became well known to the potters, especially after their introduction into the Staffordshire potteries about 1777,* appear to have been employed in the Derby works towards the end of the last or beginning of the present century, and to have continued in use up to the present time.

The mark , known as Crown-Derby, was introduced by the Duesburys, and afterwards used by Bloor. In 1831 it was discontinued, but was afterwards revived at the King Street works, and is still used in a modified form. In arranging the following specimens it has been found impossible to adhere to a strictly chronological order.

J. 1. TWO-HANDLED CUP and SAUCER, painted with flowers in gilt-edged medallions, with green festoons. Chelsea-Derby mark (the initial and an anchor in gold).

J. 2. CUP and SAUCER (fig. 142), with ribbed body, painted with flowers and blue border, enriched with gilt running ornament. Chelsea-Derby mark.

Fig. 142.

* At this time Derby porcelain seems to have been costly, since Boswell, recording a visit by Dr. Johnson to the Derby works in that year, mentions that the doctor, though he admired the beauty of the porcelain, objected to the price, and observed "that he "could have vessels of silver, of the same size, as cheap as what were here made of "porcelain."

J. 3. CUP and SAUCER, painted with sprigs of flowers and border of laurel leaves with gilt medallions. Chelsea-Derby mark.

J. 4. CUP and SAUCER, with ribbed body and turquoise-blue border edged with gilt ornament. Chelsea-Derby mark.

J. 5. CUP and SAUCER, with diamond-pressed body, gilt edged and painted with border of flowers. Chelsea-Derby mark.

J. 6. CUP and SAUCER, with ribbed body, gilt edged and painted with border of floral festoons in green. Chelsea-Derby mark, with *N* scratched in the paste of the saucer.

J. 7. DISH with pressed border, painted and gilt in oriental style with spiral compartments decorated alternately white on blue ground and red on white ground. Chelsea-Derby mark.

J. 8. MUG, with gilt edge, painted with flowers. Chelsea-Derby mark.

J. 9. CUP, with diamond-pressed body, gilt edged and painted with green leaf border, running round a purple band. Marked in gold with an anchor surmounted by a crown.

It has been suggested that this mark may have been used at Chelsea after the works were purchased by Mr. Duesbury; that is, during the period between 1770 and 1784.

J. 10. CUP, of similar style to last piece, with cream-coloured body. Same mark as on No. J. 9.

Nos. J. 9 and 10 presented by John Loraine Baldwin, Esq.

J. 11. OVAL BASKET, with deep border pierced with diamond pattern and enriched with gilding; centre painted with flowers. Crown-Derby mark in red.

J. 12. } PAIR of FIGURES, 5½ inches
J. 13. } high, painted and gilt; youth playing flute, and female with hurdy-gurdy. Marked in blue under the glaze with crossed swords in imitation of Dresden.

J. 14 BOTTLE, 9½ inches high; *bleu-de-roi* ground enriched with gilding and painted with birds and flowers in compartments. Marked in blue with crown, D, and two crossed L's in imitation of Sèvres.

J. 15. BOTTLE, 10 inches high; deep blue ground with gilt sprigs of flowers, ornamented with flowers modelled in high relief and coloured. Mark thumb-printed in red, crown and "Derby."

J. 16. BOTTLE, 9½ inches high; dark pink ground enriched with gilding, and painted with flowers in compartments. Mark printed in red, "Bloor, Derby," and a crown.

J. 17. FIGURE, 6½ inches high; youth hiding his face with garland of flowers, painted and gilt. "No. 123" scratched in the paste.

J. 18. FIGURE, 7½ inches high; female playing on a triangle, painted and gilt and mounted on a pierced scroll-work base. Marked in blue under the glaze with two crossed swords.

J. 19. } PAIR of ORNAMENTS, 8½
J. 20. } inches high, each representing a vase of flowers delicately modelled and coloured; the bases surrounded by rustic work touched with gilding; traces of a red mark.

J. 21. ORNAMENT in form of peacock with raised flowers, painted and gilt. Mark printed in red, a crown and [illegible].

J. 22. } PAIR of CORNUCOPIÆ,
J. 23. } green and gold, terminating in gilt rams' heads, and filled with flowers modelled in high

relief, and coloured. Mark printed in red, a crown and D.

J. 24. TWO-HANDLED COVERED CUP and SAUCER (fig. 143), ornamented with blue and gold border and simple festoons in pink. Crown-Derby mark in purple.

Fig. 143.

J. 25. CUP and SAUCER, with blue and gold borders, and painted garlands and festoons. Marked in blue with Crown and D.

J. 26. CUP and SAUCER; ribbed and fluted body, painted and gilt with sprigs of flowers and running floral border. Crown-Derby mark in purple.

J. 27. SAUCER, painted with border of flowers; gilt centre and rim. Crown-Derby mark in red.

J. 28. BUTTER-BOAT in form of swan. Crown-Derby mark in red.

J. 29. VASE, blue fluted body with gilt hoops, and raised flowers and swans at base, painted and gilt. Unmarked.

J. 30. TWO-HANDLED VASE, 12 inches high, ornamented with gilt scroll-work and painted with birds and river scene. Mark printed in red, "Bloor, Derby," and a crown.

J. 31. TWO-HANDLED BASKET, gilt edged, with diamond-pierced sides painted in red and black. Crown-Derby mark in red.

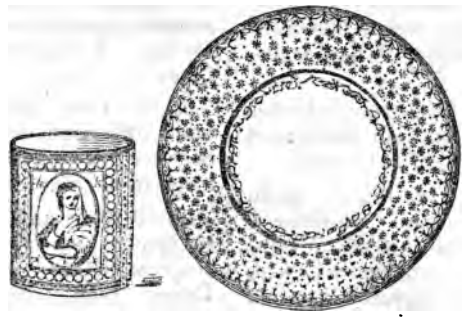
J. 32. TWO-HANDLED BASKET, with gilt diamond-pierced sides, the handles ornamented with raised flowers of red may. Mark printed in red, a crown and D.

J. 33. STAND for a similar basket, with gilt diamond-pierced border, and centre painted with flowers. Crown-Derby mark in red.

J. 34. TWO-HANDLED CUP and SAUCER, ornamented with broad canary-yellow band with blue chevron border and gilt wreath. Crown-Derby mark in purple.

J. 35. MUG and SAUCER (fig. 144); white ground sprinkled with gold stars, painted by Banford with female portrait in oval medallion, with blue and gold border in square frame, enamelled with pearls on gilt ground. Crown-Derby mark in purple.

Fig. 144.



J. 36. MUG and SAUCER, painted with flowers springing from the base of cup, and radiating from a green central disc in saucer. Crown-Derby mark in red.

J. 37. CUP and SAUCER, of peculiar form, painted with flowers on white ground ornamented with gilt scroll-work. Mark printed in red, a crown and D.

J. 38. CUP and SAUCER, painted and gilt with simple sprigs of flowers, known as pattern No. 129. Crown-Derby mark in purple.

J. 39. CUP and SAUCER, with gilt festooned edge, painted with broad border of flowers. Unmarked.

J. 40. TWO-HANDLED CUP and SAUCER, of peculiar shape, painted and gilt in oriental style. Mark printed in red, a crown and D.

J. 41. PASTILE BURNER, with blue and gold border and three gilt rams' heads; painted with birds by John Hancock, jun.; mounted on three feet with gilt scroll-work. Mark printed in red, "Bloor, Derby," and a crown.

J. 42. VASE, 9½ inches high, pale blue ground with flowers painted in panel. Unmarked.

J. 43. STATUETTE of Diana in biscuit, 6½ inches high. Crown-Derby mark impressed and "No. 120."

J. 44. STATUETTE of Mars in biscuit, 6½ inches high. "No. 114" impressed.

J. 45. FIGURE in biscuit, 10 inches high, a shepherd playing flute. Crown-Derby mark impressed, and a triangle.

The fingers of this figure are broken, and the flute is wanting.

J. 46. GROUP of two figures, painted and gilt; youth and maiden dancing. Marked with "No. 17," scratched in the paste.

J. 47. GROUP of two figures, painted and gilt; man and woman quarrelling. Marked with crossed swords in imitation of Dresden.

J. 48. GROUP representing farmer's wife offering babe to the clergyman while the farmer holds the tythe pig. Unmarked.

J. 49. FIGURE of Falstaff, 11 inches high, painted and gilt. Unmarked.

J. 50. FIGURE of female feeding a cat, painted and gilt.

J. 51. FIGURE, 9¾ inches high, painted and gilt; youth, with raised flowers. Marked with crossed swords in blue.

J. 52. FIGURE, playing bagpipe, with dog, backed by flowers supporting two nozzles for candles. Marked with crossed swords in blue.

J. 53. VASE and COVER, 7½ inches high, formed of intertwined leaves, painted and gilt, and ornamented with flowers modelled in high relief. Unmarked.

J. 54. VASE of FLOWERS, 8 inches high, modelled in high relief and coloured. Traces of red mark.

J. 55. EWER, 14 inches high, dark blue border with gilt flowers, painted with floral subjects in compartments and ornamented with beading and raised scroll-work in white and gold. Unmarked.

J. 56. EWER, 9¾ inches high, pale blue body with landscape painted in oval medallion. Unmarked.

J. 57. CUP and SAUCER, with landscapes in gilt edged medallions, painted by Zachariah Boreman; the cup with view near Crich, and saucer with view near the Trent, Derby. Crown-Derby mark in blue.

J. 58. CUP and SAUCER, with band of roses on black ground between gilt borders. Crown-Derby mark in purple.

J. 59. CUP and SAUCER, painted in brown monochrome with landscape, with finger-post inscribed "To Dery" (*sic*). Marked in purple with small crossed swords.

J. 60. COFFEE-CUP, in same style. Same mark.

J. 61. BASIN, in same style, with milestone inscribed "To London, 50 miles, A.D. 1820." Same mark.

N.B.—The following specimens are placed at the back of the series of cases containing the Derby china (Nos. XV. to XIX.).

J. 62. PLATE, gilt edged, painted with group of fruit by Thomas Steele. Crown-Derby mark in red.

J. 63. PLATE, with blue and gold scroll-work edge, painted with flowers both in centre and in compartments on the border. Crown-Derby mark in red.

J. 64. PLATE, with fluted border, centre beautifully painted (probably by Askew) with group of country children and sheep taking refuge beneath a tree during a thunderstorm; blue border with gilt ornaments in medallions. Crown-Derby mark in purple.

J. 65. PLATE, with turquoise-blue border with groups of flowers painted in six gilt-edged compartments; centre plain, with border of gilt festoons. Mark printed in red, crown and "DERBY" in ribband.

J. 66. PLATE, with birds painted in gilt-edged compartments on green ground, centre plain, with gilt edge of Greek fret pattern. Mark printed in red, crown and "Derby" in ribband.

This is a pattern of a dessert service made for Her Majesty.

J. 67. PLATE, with Cupid in centre, painted in pink camaieu by Askew, and border of pink scroll-work with brown festoons. Crown-Derby mark in purple.

J. 68. PLATE, with deep marone border, centre decorated with raised flowers in gold and with gilt border of grass and flowers. Mark printed in red, crown and D.

J. 69. PLATE, painted with group of fruit in centre, and deep blue border enriched with gilt margins of raised flowers and scroll-work. Mark printed in red, crown and D.

J. 70. PLATE, painted in centre with flowers; bright blue border with gilt flowers in medallions connected by wreaths. Mark printed in red, crown and "Derby" in ribband.

J. 71. DISH, with blue and gold border, painted in centre with flowers by Billingsley. Crown-Derby mark in puce.

Presented by John Haslem, Esq., of Derby.

J. 72. PLATE, painted with small roses, with blue and gold border. Crown-Derby mark in puce.

J. 73. PLATE, painted with flowers; border divided into three compartments by blue and gold horse-shoe ornaments with feather edge. Crown-Derby mark in red.

J. 74. PLATE, gilt edged, painted with flowers. Unmarked.

J. 75. PLATE, painted with scroll-work in red and blue, and gilt; the pattern known as "Mary's Meadows;" Crown-Derby mark in red.

J. 76. PLATE, painted with simple flowers and border of blue and white chequer pattern with gilt edge. Crown-Derby mark in red.

J. 77. PLATE, painted with conventional foliage, known as the Greek Japan pattern, in green, red, and gold. Mark printed in red, crown and D.

J. 78. SMALL DISH, gilt edged, painted with yellow American butterwort. Crown-Derby mark in red, and name of the flower.

J. 79. COMPOTIER, with fluted border and gilt edge, painted in centre with a double China-aster. Crown-Derby mark in red, and name of the flower.

J. 80. HEART-SHAPED DISH, painted in green and black with flowers in centre and radiating border. Crown-Derby mark in green.

J. 81. FOUR-LOBED DISH, with gilt edge and broad canary-yellow border; Crown-Derby border in purple.

J. 82. RECTANGULAR PLAQUE, (8″ × 6″), painted with group of flowers. Initials scratched in the paste, "J. P."

J. 83. OCTAGONAL PLAQUE, (9″ × 7½″), painted with eight butterflies, and signed "J. Caulton, 1805."

J. 84. OVAL PLAQUE (greater diameter 9¼″, smaller diameter 7″), painted by Mr. John Haslem with cavalier and lady, after Bonnington; richly gilt border on blue ground. Marked in blue with crossed swords.

J. 85. OVAL PLAQUE, same size and style as last, painted by Mr. Haslem with an oriental lady attended by female musician and black servant. Marked in blue with crossed swords.

J. 86. RECTANGULAR TRAY, (9⅜″ × 7¼″), centre painted by Mr. John Haslem in imitation of a cameo with Cupid on a lion; border pierced and gilt. Mark printed in red, crown and D.

J. 87. DISH, painted with flowers, and blue and gold border with pink festoons. Marked in blue with crown and D.

J. 88. PLATE, with gilt gadroon edge, border of birds and forget-me-not painted by Moses Webster, and centre with conventional five-leaved ornament in gold. Mark printed in red, "Bloor, Derby," and crown.

J. 89. PLATE, with deep blue border enriched with gilt scroll-work; centre painted with view near Derby. Mark printed in red, "Bloor, Derby," and crown.

J. 90. PLATE, with three groups of flowers painted on border of pressed diaper pattern with gilt edge; centre plain. Mark printed in red, "Bloor, Derby," and crown.

J. 91. DOUBLE-HANDLED TUREEN, COVER, and STAND, painted with

flowers by William Pegg, the Quaker; inscribed inside with names of the subjects in blue; on tureen "*Eastern Poppy*" and "*Various Tulips;*" on cover "*Large Double China Aster,*" "*Cordifolio Geranium,*" and "*Terebinthinum Geranium,*" and on stand "*Sweet Pea*" and "*Nasturtium.*" Crown-Derby mark in blue.

This piece, on account of its size, stands outside on the top of Case XIX.

J. 92. LARGE VASE (fig. 145), 17½ inches high, of the form known at the works as the "King's Vase;" with two gilt handles terminating in

Fig. 145.

satyr masks; dark blue ground richly gilt and painted with flowers in a panel on one side, and with birds on the other. Unmarked.

This specimen is placed on the top shelf of Wall Case XXXV.

J. 93. LARGE BOTTLE, 17½ inches high, painted and gilt in oriental style with the "Exeter Japan" pattern. Unmarked.

This bottle stands on the top shelf of Wall Case XXXVI.

PINXTON PORCELAIN.*

[Wall Case XIX., ; bottom shelf.]

A manufactory of porcelain was established at Pinxton, near Alfreton, in Derbyshire, about 1795, by Mr. John Coke, who secured the co-operation

* *From* information kindly furnished by Mr. John Haslem, of Derby.

of William Billingsley, the flower painter from the Derby works. Under Billingsley, who was not only a good artist but a practical potter, a fine transparent paste was produced, greatly resembling that which was afterwards made at Nant-garw. It is probable that Billingsley did not remain at Pinxton more than four or five years, and that he took with him his receipts for the body and glaze, as the porcelain subsequently made was of an inferior quality. After Billingsley left, the works were conducted for some time by Mr. Coke alone, and afterwards passed into the hands of Mr. Cutts, a painter, who subsequently settled in Staffordshire. The Pinxton works were closed about 1812, but their site is still known as "Factory Square" and "China House Square." It is believed that generally no mark was used at Pinxton, but a cursive P is sometimes found.

J. 94. DESSERT DISH, four lobed, with vermilion border and green and gold festoons; centre painted with English landscape. Unmarked.

This dish must be referred to the period subsequent to Billingsley's retirement from Pinxton. It belonged to the late Rev. R. H. Frazell, rector of South Normanton, two miles from Pinxton, and was purchased at the sale at the rectory in 1869. Mr. Frazell obtained it from the late Rev. Mr. Williams, rector of Pinxton, whose wife was a daughter of Mr. John Coke, previously mentioned as the chief proprietor of the old Pinxton works. (*See also* p. 256.)

PLYMOUTH PORCELAIN.

[Wall Cases XX and XXI.]

It has been already stated (p. 15) that William Cookworthy, of Plymouth, had been engaged in experimenting on Cornish kaolin and porcelain-granite prior to 1758, when Borlase published his Natural History of Cornwall. Cookworthy, who was a member of the Society of Friends, and in the latter part of his life an eminent minister of that society, was born at Kingsbridge, South Devon, in 1704. In early life he and his brother Jacob were chemists and druggists in Nut Street, Plymouth, and William seems to have acquired considerable reputation for his chemical knowledge. It was this knowledge which appears to have induced him to direct his attention to the manufacture of porcelain especially after the Père d'Entrecolles, who in 1712 resided at King-te-chin, a famous locality for porcelain works in China, had made known the materials employed, specimens of which had been sent to Paris in 1727–1729.

In a letter to Mr. Hingston, of Penryn, in Cornwall, dated 30th May 1745, Cookworthy mentions that a person from Virginia had discovered both kaolin and petuntse there, and had made from these materials certain specimens of porcelain, which he showed to Cookworthy. Whatever the value of the information may have been, the letter shows that Cookworthy had his attention directed to the materials for the manufacture of porcelain at that time.*

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* The following is an extract from this letter:—

"I had lately with me the person who has discovered the *China-earth*. He had with him several samples of the china-ware, which I think were equal to the Asiatic. It was found on the back of *Virgina*, where he was in quest of mines; and having read Du Halde, he discovered both the *Petunze* and *Kaolin*. It is this latter earth which he

Mr. Prideaux infers that his discovery of the kaolin and porcelain-granite of Cornwall may have taken place about 1755.* He had evidently searched the country in different directions, with the view of discovering these materials, for Borlase mentions his researches in the parish of Breague, and Mr. Prideaux quotes information received from Mr. Martin, of the St. Austel Blowing House, to the effect that Cookworthy first discovered porcelain-granite in the tower of St. Columb church, which was built of that granite from St. Stephens. Having discovered the necessary raw materials, Cookworthy, in conjunction with Lord Camelford,† established works at Plymouth for the manufacture of porcelain of hard paste, and in 1768 took out a patent for the manufacture.‡

The porcelain is described as "composed of moorstone or growan and growan clay," that is, of porcelain-granite and china-clay, the stone giving the ware "transparence and mellowness," and the clay imparting "whiteness and infusibility." At the date of this patent, Cookworthy, who is described as a man of considerable energy, possessing an ardent desire for the advancement of knowledge, was in his sixty-fifth year.

The porcelain works were carried on at Coxside, Plymouth, and the buildings are still existing. For the decoration of the ware, Cookworthy engaged an excellent painter from Sèvres, named Mons. Soqui; and the celebrated enameller Henry Bone, a native of Plymouth, is said to have served his apprenticeship at these works. From fifty to sixty people were engaged there; and the demand for the blue and white porcelain is said to have been considerable. The fuel seems to have been chiefly wood.§

As the works at Plymouth did not prove sufficiently remunerative, the patent rights were assigned in 1774 to Mr. Richard Champion, a merchant of Bristol, and the works were removed thither.

Undoubted specimens of Plymouth porcelain have become extremely scarce. The mark, when one was used, is 24, the alchemic symbol for tin

says is essential to the success of the manufacture. He is gone for a cargo of it, having bought from the Indians the whole country where it rises. They can import it for 13*l.* per ton; and by that means afford their china as cheap as common stoneware; but they intend only to go about 30 per cent. under the company." He then proceeds to express no very high opinion of this person, and it will be observed that "samples of the ware" were shown, while no mention is made of actual specimens of kaolin and petuntse.

* "Relics of William Cookworthy," 1853, p. 4.

† The following letter from Lord Camelford to Mr. Polwhele (History of Cornwall), dated Boconnoc, November 30, 1790, is important on this subject:—"With regard to the porcelain manufactory that was attempted to be established some time ago, and which was afterwards transferred to Bristol, it was undertaken by Mr. Cookworthy, upon a friend of his having discovered on an estate of mine in the parish of St. Stephens a certain white saponaceous clay, and close by it a species of granite or moorstone, white with greenish spots, which he immediately perceived to be the two materials described by the missionary Père d'Entrecolles, as the constituent parts of the Chinese porcelain; the one giving whiteness and body to the paste, the other vitrification and transparency. The difficulties found in proportioning properly these materials, so as to give exactly the necessary degree of vitrification, and no more, and other niceties with regard to the manipulation, discouraged us from proceeding in this concern, after we had procured a patent for the use of our materials, and expended on it between two and three thousand pounds. We then sold our interest to Mr. Champion, of Bristol."

‡ Specifications of Patents, No. 898, March 17, 1768.

§ *Burt's* "Review of Plymouth" (1816), as quoted by Prideaux in his "Relics of Cookworthy," *p. 5.*

(Jupiter), and probably adopted in allusion to the stanniferous character of that portion of country where the raw materials were obtained.

K. 1. } PAIR of SALT-CELLARS,
K. 2. } each in form of a valve of *Tridacna*, mounted on base of coral and shells (fig. 146). Plain white body, with cloudy glaze. Unmarked.

Presented by Mr. Williams, of Plymouth.

Fig. 146.

K. 3. } PAIR of FEMALE FIGURES,
K. 4. } 13 inches high, representing Europe and Asia. Plain white body, on which the peculiar glaze of some of the Plymouth porcelain is well seen.

Presented by Mrs. General Nelson, of Plymouth.

K. 5. FIGURE representing Winter, 6 inches high. A boy wrapping a mantle around him. Plain white glazed body.

Presented by Montagu E. Parker, Esq.

K. 6. FIGURE, 6 inches high. Boy seated on a cask and holding mug. Painted and gilt, and mounted on base of scroll-work in green and gold. Broken and repaired.

Presented by Earl Morley.

K. 7. TWO-HANDLED SUGAR-BASIN, in earthenware or delft, with thick white stanniferous enamel, painted with flowers in green, blue, yellow, and purple.

Presented by Montagu E. Parker, Esq.

K. 8. MUG, with gilt border, painted with birds and trees. Plymouth mark in gold.

Presented by Earl Morley.

K. 9. MUG (fig. 147), with gilt chevron border, painted with flowers. Plymouth mark in gold.

Presented by Earl Morley.

Fig. 147.

K. 10. MILK JUG, painted and gilt with quails and conventional flowers. Unmarked.

K. 11. SAUCE-BOAT, with pressed scroll-work pattern, painted with flowers. Unmarked.

Presented by W. Cookworthy, Esq.

K. 12. SAUCE-BOAT, in same style as last piece, painted with a cock, the crest of the Cookworthy family. Unmarked.

Presented by W. Cookworthy, Esq.

K. 13. } PAIR of SAUCE-BOATS,
K. 14. } with embossed ornament, printed with flowers in blue. Unmarked.

Presented by the late Sir William Snow Harris, of Plymouth.

K. 15. SAUCE-BOAT, printed with Chinese subject in blue. Plymouth mark in relief, and initials.

K. 16. BASIN, rudely painted with flowers. Marked in red, "594."

K. 17. TEA-CUP, painted with flowers in red, yellow, and green. Unmarked.

K. 18. TEA-CUP, painted wit conventional foliage in blue. Plymouth mark in blue under the glaze.

K. 19. PLATE in earthenware, with thick white enamel, rudely

painted with flowers. Marked in blue with figure "4" under the glaze.

K. 20. PLATE in earthenware, with thick white enamel, painted in green, with flowers on the border and crest of the Parker family in the centre (fig. 148). Unmarked.

Presented by Montagu E. Parker, Esq.

Fig. 148.

K. 21. SAUCER, painted in Chinese style in dark blue under the glaze. Plymouth mark in blue.

Presented by Montagu E. Parker, Esq.

K. 22. HEXAGONAL TRAY, with fluted edge, printed in blue under the glaze with Chinese subject. Unmarked.

BRISTOL PORCELAIN AND EARTHENWARE.

[Wall Cases XXII. and XXIII.]

On the assignment of Cookworthy's patent rights to Mr. Richard Champion, of Bristol, in 1774, the Plymouth porcelain works were transferred to the Castle Green, at Bristol. In a letter from Cookworthy to his niece at Plymouth, he speaks of being detained at Bristol closing his business with Champion.* The deed of transfer was dated May 6th, 1774, and Champion thereby covenanted to pay Cookworthy an annual amount equal to the value of the china-clay and china-stone that should be used during the year, thus doubling the cost of these raw materials. It has been supposed that Cookworthy had some further interest in the

* Prideaux's "Relics of Cookworthy," p. 22. This letter, unfortunately, bears no other date than "Bristol, 4th day, 10 o'clock." Incidentally it shows the rate of travelling in those days between Bristol and Plymouth. Referring to the time when the business would be settled, Cookworthy says, "then, if health permits, I shall set out in the machine second day [Monday] morning, and reach Plymouth on fourth day [Wednesday]." *The express train now* travels over the same distance in less than four hours.

Bristol works, as Pryce, in his *Mineralogia Cornubiensis*, published in 1778, when speaking of the "Divining Rod," refers to Mr. William Cookworthy, of Plymouth, and says, "It is to him the publick is indebted for "the late improvements in the porcelain manufactory now established at "Bristol, which, *under his direction*, is likely to be rendered not less "elegant and durable than the best Asiatick china."* After closing his connexion with the manufacture of porcelain, Mr. Cookworthy appears to have devoted his remaining years until his death, which occurred at Plymouth in 1780 at the age of 76, to his duties as a minister in the Society of Friends.†

Soon after Champion had established the works at Bristol, he presented a petition to the House of Commons, praying for an enlargement of the term of Cookworthy's patent for a further period of fourteen years. A violent opposition to this application was raised by Josiah Wedgwood and some other Staffordshire potters, but an Act‡ was ultimately passed extending the term, "in order to enable Richard Champion, of Bristol, "merchant, to carry the said discovery [Cookworthy's] into effectual "execution for the benefit of the public." In consequence, however, of the opposition, a proviso was inserted for the benefit of the potters, allowing them to use china-clay and china-stone for the manufacture of earthenware, but not for that of porcelain. A clause in this Act required the enrolment of Champion's specification, and this was accordingly done on the 15th September 1775. In this specification it is said that, "without "taking away from the ware the distinguishing appearance and property "of Dresden and oriental porcelains," the proportions of the ingredients may vary from one part of growan clay (china-clay) to four parts of growan stone (china-stone), to 16 of clay to 1 of stone. The raw materials of the glaze are said to differ in number and proportions according to will, but they may consist of "the stone or gravel aforesaid and the "clay aforesaid, magnesia, nitre, lime, gypsum, fusible spar, arsenic, lead, "and tin ashes (oxide of tin)."

Little more than two years after obtaining this extension of the patent, Champion sold his rights to a company of potters in Staffordshire, and the manufacture was continued for some time at Tunstall, and subsequently at New Hall at Shelton (p. 98). Champion removed to the Potteries, and is said to have superintended the china manufacture until 1782, when he was appointed paymaster of the forces under Burke. He died at Camden in South Carolina in 1787.

A manufactory of pottery, still existing, was established at the Temple Backs, in Bristol, in 1787, and it is believed that some kind of transfer was effected from the old works in the Castle Green.§ The earthenware was made, as now, with Poole (Dorset) clay and flints from Wiltshire.‖

* "Mineralogia Cornubiensis," by W. Pryce, 1778, p. 116.

† In a letter to his daughter Lydia, dated from Wadebridge in Cornwall, and referred to about the year 1777, he gives an account of one of his progresses on his duties at St. German's, Camelford, and Port Isaac. (*See* "Relics of William Cookworthy," collected by John Prideaux, 1853.)

‡ 15 Geo. III. cap. 52.

§ Mr. R. Etheridge ascertained in 1853 that an old man who died in 1852 had worked about the year 1775 at the Castle Green works. This man subsequently lived with Mr. Powell at the earthenware establishment in Temple Street, and Mr. Powell possesses a note-book containing receipts employed in the time of Cookworthy.

‖ From information obtained by Mr. Robert Etheridge.

Pot works had previously been established at Bristol for the production of coarse ware from the clays of the neighbourhood, and delft ware had been made there at an early period. A piece of blue-painted Bristol delft ware in the collection (No. L. 23) bears the date 1760, and Mr. Llewellynn Jewitt describes a plate dated as early as 1703.

The common mark upon Bristol porcelain and earthenware is a cross, printed in blue or in slate colour. Bristol porcelain is now extremely valuable.

L. 1. FRUIT DISH, with lobed sides, gilt edged, and painted with flowers. Marked in blue, ⍋.

Presented by W. Cookworthy, Esq.

L. 2. SMALL SUGAR-BASIN, with brown edge, painted with festoons of flowers. Marked with cross in slate colour.

L. 3. MUG, with crimson edge and border inside; painted with flowers.

Presented by Mrs. Bury Palliser.

L. 4. CUP, brown edge, painted with flowers. Marked in blue with cross and number "24."

L. 5. CUP, with border of scroll-work and flowers in brown monochrome. Unmarked.

L. 6. CUP and SAUCER, gilt edged and painted with flowers. Marked with cross in blue.

L. 7. TEA-POT and COVER, with gilt borders, and painted with flowers. Unmarked.

L. 8. COFFEE-POT and COVER, with brown edge, and painted with flowers. Marked in blue with the Bristol cross and Dresden crossed swords.

L. 9. SAUCE-BOAT, with moulded rim edged in brown, and painted with flowers. Marked in blue with cross and number "10."

L. 10. PLATE, gilt edged and painted with flowers. Marked in blue with cross and figure "6." Broken and rivetted.

L. 11. PLATE, gilt edged, and painted with bunch of flowers in centre and sprigs of flowers on the border. Signed on back in gold, "Pardoe, Fecit, Bristol."

L. 12. PLATE, gilt edged, and painted with passion-flower, &c. in centre and three sprigs of flowers on border. Unmarked.

L. 13. INKSTAND, with brown edge and border, painted with flowers in pale colours. Marked with cross in blue and figure "8" in pink.

From the Bandinel collection.

L. 14. TWO-HANDLED DISH, COVER, and STAND, with gilt edges, and festoons and borders of laurel painted in green; cover surmounted by a white rose. The dish and stand each marked in blue with cross and figure "1."

L. 15. CUP and SAUCER, in same style as last piece. Marked with cross in blue.

Presented by Her Grace the Duchess of Northumberland.

L. 16. CUP and SAUCER, gilt-edged, and painted with flowers in blue monochrome. Marked with cross in blue and figure "2" in gold.

L. 17. CUP and SAUCER, painted with flowers and purple ribands entwined round gilt bands. Unmarked.

L. 18. CUP, edged in brown and painted with flowers. Marked with cross in blue.

L. 19. SAUCER, gilt edged and painted with flowers. Marked with cross in blue and gilt figure "2."

L. 20. DISH, gilt edged, with Chinese subject printed in pale blue

under the glaze. Marked with blue cross.

L. 21. MUG, with flowers painted in blue under the glaze. Marked with blue cross.

L. 22. LARGE MUG, in delft ware, mottled blue. Marked with cross in blue under the glaze.

L. 23. PLATE, in delft ware, painted in blue with Chinese subject, and marked in blue, $\frac{M+B}{J760}^{E}$.

This plate was painted by Michael Edkins, of Bristol, and the initials M. & B. E. are those of Michael and Betty Edkins.

L. 24. PLATE, in delft ware, coarsely painted in colours, with figure of a female beneath a tree.

L. 25. SUGAR-BASIN and COVER, in cream-coloured earthenware,* with twisted handles; painted with flowers.

L. 26. TEA CANISTER, in cream-coloured ware, painted with floral festoons, partly worn off.

L. 27. TEA CANISTER, in cream-coloured ware, painted in black and flesh-tints with Abraham about to sacrifice Isaac, and inscribed, "genesis: 22."

L. 28. COFFEE-POT, in cream-coloured ware, with twisted handles; painted with flowers in purple, the ornaments at base of handles being touched with green.

L. 29. LARGE MUG, in cream-coloured ware, with simple border of quatrefoils, alternately blue and brown, running round the rim.

L. 30. FLOWER-POT, in white glazed earthenware, with applied ring handles; printed on each side in pale brown and purple under the glaze, with monument inscribed "Peace of Europe signed at Paris, May 30, 1814," supported by female figures emblematic of Peace and Plenty, and backed by the united flags. At bottom a distant view of Bristol, with the Temple Church and pot works in the rear, inscribed "Bristol Pottery."

ROCKINGHAM PORCELAIN AND EARTHENWARE.

[Wall Case XXIV.]†

This ware was manufactured at Swinton, near Rotherham, in Yorkshire. As early as 1757 a tile-yard and a manufacture of earthenware were established on the estate of Charles, Marquis of Rockingham, in Swinton, Wath-upon-Dearne. Mr. Edward Butler, at that time the tenant and occupier, was induced to establish the manufactory in this locality, from the circumstance of various beds of clay having been found in an adjacent parcel of ground called Swinton Common, consisting of the common yellow clay used for the purposes of making bricks, tiles, and coarse earthenware; of a finer white clay for making pottery of a better quality; of an excellent clay for making fire-bricks; and also a white clay usually called pipeclay.

* It is probable that these specimens of cream ware may be referred to the manufacture of Joseph Ring, of Bristol. The following advertisement has been preserved, inserted in the Bristol Gazette and Public Advertizer for Thursday, January 18th, 1787, No. 1,010:—"Bristol Pottery, Temple Backs. Joseph Ring takes this opportunity to "inform merchants and others that he has established a manufactory of the Queen's "and other earthenware, which he will sell on as low terms, wholesale and retail, as "any of the best manufacturers in Staffordshire can render the same to Bristol."

† Convenience of space has led to the selection of this position for the Rockingham ware, although it is thus separated from the productions of the other Yorkshire potteries.

In 1765 the works became tenanted by Mr. William Malpass, who carried on the same kind of manufactory. In 1778 the works were taken by Messrs. Thomas Bingley and Co., a more opulent firm, who considerably enlarged them, and carried on an extensive trade, not only in the common descriptions of earthenware, but also in white, and blue and white dinner and tea services, and other wares of a superior quality. They also manufactured the brown or chocolate-coloured tea and coffee services, pitchers, &c., which obtained the name of "Rockingham ware," for which the demand was then considerable and has continued to be so up to the present time.

In 1807 the works passed into the hands of Messrs. John and William Brameld; and upon their deaths, Messrs. Thomas, George Frederick, and John Wager Brameld became the tenants. During their tenancy the works were much enlarged, and a mill for grinding flints was erected. Many improvements were introduced in the manufacture of dinner services, &c., and of useful and ornamental earthenware of every description. About the year 1820 Mr. Thomas Brameld directed his attention, in addition to the ordinary work, to the manufacture of porcelain of the finest description, sparing no labour or cost in bringing it to perfection; and in the painting and gilding he employed the best artists.

At these works were produced, in glazed porcelain, dinner, dessert, breakfast, and tea services, vases, groups of flowers, chimney and drawing-room ornaments, cornices, &c., all richly painted and gilt; and in plain white biscuit china, vases, flower baskets, flowers, statuettes, busts, &c. Amongst their various productions were a dinner and a dessert service on an extensive scale, richly painted and ornamented, for His late Majesty King William IV., and also a vase of a very large size, which is now in Wentworth Woodhouse, and is the property of Earl Fitzwilliam, the owner of the works.

In the years 1826 and 1827 (years of great commercial difficulties) Messrs. Brameld became embarrassed, but the works were continued by them with the assistance of Earl Fitzwilliam, their landlord, till the year 1842, when they were discontinued as a manufactory either of earthenware or of porcelain.

A portion of the works continued to be occupied by Mr. Isaac Baguley, (formerly in the employ of Messrs. Brameld in the painting and gilding department), who purchased earthenware and china in the biscuit state, and completed the painting, gilding, and ornamental work for sale. The flint mill was also occupied and worked by Mrs. Brameld, the widow of the late Mr. Thomas Brameld.

The materials used by Messrs. Brameld in their china and porcelain works were Cornish stone and china-clay from St. Austell, in Cornwall; calcined bones; and flints from Ramsgate, Sandwich, Shoreham, and other parts of the coast of Kent and Sussex, which were ground at the works. Clay was also obtained from Wareham and other parts of the coast of Dorset.*

M. 1. PLATE, with royal arms painted and gilt in centre, and border of oak leaves in dead gold on green ground. Marked in purple with a griffin (the Rockingham crest) and "Royal Rock^{m}. Works, Brameld."

* For the information given above we are indebted to the kindness of Earl Fitz-*william*, K.G.

M. 2. PLATE, with royal arms in centre and oak-leaf border gilt on turquoise-blue ground. Mark similar to that on No. M. 1.

Nos. M. 1 *and* 2 *presented by Earl Fitzwilliam, K.G.*

These were pattern plates for the dessert service made for William IV., as mentioned above.

M. 3. CUP and SAUCER. White ground, with compartments painted green and bordered with vine pattern richly gilt. Centre of saucer and inside of cup painted with crown. Marked in purple with a griffin and "Rockingham Works, Brameld, Manufacturer to the King."

M. 4. CUP and SAUCER, with compartments painted dark green and bordered with rose, thistle, shamrock, and leek, richly gilt; ornamented with festoons of forget-me-not painted on white ground; centre of saucer and inside of cup with crown. Mark similar to that on No. M. 3.

M. 5. CUP and SAUCER, richly painted and gilt with the rose, thistle, shamrock, and leek on green ground; centre of saucer and inside of cup with crown. Mark similar to that on No. M. 3.

M. 6. VASE, 11 inches high, painted with landscape in gilt-edged compartment on blue ground enriched with gold. Handle on each side in form of stork's head, gilt. Mark similar to that on No. M. 3.

M. 7. FIGURE, 8 inches high, of a Piedmontese peasant painted in proper colours, and inscribed in gold, "Paysan Piemontais de la Vallee d'Aoste." Stamped "Rockingham Works, Brameld."

M. 8. BREAKFAST CUP and SAUCER, with twisted handle. Exterior chocolate coloured and ornamented with the rose, thistle, shamrock, and leek, richly gilt. Interior painted with wreath of flowers and crown surmounted by lion. Unmarked, but authenticated as purchased from the manufacturers.

M. 9. COFFEE-CUP and SAUCER, with ribbed body ornamented with gilt stars, and the rose, shamrock, and thistle printed in blue. Marked in red with griffin and "Rockingham Works, Brameld."

M. 10. EGG-CUP and STAND, painted with flowers and insects, and gilt. Marked similar to No. M. 9. Fractured.

Presented by Ben. Biram, Esq.

M. 11. PLATE, with roses painted in centre, surrounded by deep blue border, gilt edged. Mark similar to that on No. M. 9.

M. 12. EARTHENWARE PLATE, gilt edged, painted in centre with *Dillwynia floribunda;* the botanical name written in red on the back. Impressed mark, BRAMELD.

M. 13. SOUP-PLATE, in earthenware, with centre and border painted in dark green. Stamped BRAMELD.

M. 14. SMALL COFFEE-POT and COVER, in brown glazed ware, stamped ROCKINGHAM.

M. 15. "CADOGAN," or tea-pot filled from below, in brown Rockingham ware, ornamented with raised flowers.

Presented by Mrs. Brameld.

M. 16. SMALL "CADOGAN," similar to last; spout broken. Stamped "Mortlake's Cadogan."

Worcester Porcelain.

[Wall Cases XXV. to XXX.]

According to the historians of Worcester,* the manufactory of porcelain was established there in 1751† chiefly through the exertions of Dr. J. Wall, a physician of that city, who was at once a skilful chemist and an admirable artist. The company formed to carry on the works commenced its operations in a fine old mansion, called Warmstry House, formerly the residence of the Windsor family and the Earls of Plymouth. A view of the works appeared in the *Gentleman's Magazine* for August 1752. According to Mr. Binns,‡ the earliest Worcester china was composed of a frit body; and although the old receipt known as "The True Secret of making Worcester Porcelain" is not extant, yet he believes that the following formula must be very similar to that originally used by Dr. Wall, viz., sand, 120 parts; gypsum, 7; soda, 7; alum, 7; salt, 14; and nitre, 40. These materials having been fritted together, the product was crushed, and 75 parts of the frit were mixed with 15 of whiting and 10 of pipeclay. The body thus made was coated with a glaze containing 38 per cent. of red-lead, 27 of sand, 11 of ground flints, 15 of potash, and 9 of carbonate of soda. While the frit body long continued in use for the finer kinds of china, an inferior paste was formed for commoner ware by the use of steatite. The frit paste was distinguished by its density and by its green colour when viewed by transmitted light, while the soap-rock body was less dense and of a yellowish colour.

As early as 1763 the Worcester porcelain seems to have been much esteemed. Thus a writer in the "Annual Register" for that year, after noticing the porcelain of Dresden and Chantillon, and classing that of Chelsea with them, considering all as more ornamental than useful, and as costly as oriental porcelain, adds, "We have indeed many "other manufactures of porcelain which are sold at a cheaper rate "than any that is imported, but except the Worcester they all wear "brown and are subject to crack, especially the glazing, by boiling "water."

In 1772 the twenty-one years' lease of Warmstry House expired, and the premises passed into the hands of a new company. In 1783 Mr. Flight purchased the property for 3,000*l.*, and ten years later the firm became "Flight and Barr." On the admission of another partner in 1807, the style was changed to that of "Barr, Flight, and Barr," and on the death of the elder Barr in 1813, it became "Flight, Barr, and Barr."

It would appear that when the Worcester works were sold to Mr. Flight, two of the employés, Robert and Humphrey Chamberlain, left the establishment and commenced business in the town on their own account. This business was ultimately so successful as to prove a formidable opponent

* Nash's "History of Worcestershire," vol. ii. p. 124; and Green's "History and Antiquities of Worcester," 1796, vol. ii. p. 19.

† The same date as that of the establishment of the Derby works. Probably the great success of the Chelsea and Bow porcelain about this time directed much attention to this manufacture. This success may have had some influence on the spread of earthenware as manufactured in Staffordshire. The Swansea pottery was established in 1750.

‡ "A Century of Potting in the City of Worcester, being the History of the Royal Porcelain Works from 1751 to 1851," by R. W. Binns, F.S.A., 1865, p. 40.

to the old works, and in 1840, after a long period of rivalry, the two establishments were amalgamated. At present the business is in the hands of a joint-stock company, under the management of Messrs. Phillips and Binns.

At an early date in the history of the Worcester works, Dr. Wall availed himself of the process of transferring printed engravings on to a glazed surface, and applied this art to the decoration of his porcelain. Some of the earliest specimens are delicate engravings by Robert Hancock, who had studied under Ravenet, an engraver employed at the enamel works which were established at Battersea in 1750, and where, according to Mr. Binns,* transfer-printing was first introduced. Many examples of early printing on Worcester china will be found in the collection, and especial attention may be directed to the jug, N. 33, which bears the earliest known date of Worcester printed ware, 1757. At first the designs were printed over the glaze and the printed pieces exposed only to the heat of the enamel kiln ; but the invention of under-glaze printing soon followed, and the designs were then transferred to the ware when in the state of biscuit.

The early productions of Worcester seem chiefly to have been imitations of China and Japan wares,—imitations much encouraged by the high repute in which those kinds of porcelain were then held. False marks were sometimes affixed, especially to the early imitations of the Japan wares. One of the earliest ordinary marks, a crescent , can scarcely be regarded as a counterfeit; but the brand of a chequer or square variously fretted , subsequently employed, bears a general resemblance to a Chinese mark. The letter was used at an early date, and was probably suggested by the initial of both Wall and Worcester. Subsequently the name or initials of the firm were invariably employed, either stamped or printed, and most of these marks, varying with changes in the proprietorship, may be found in the following collection.

N. 1. COMPOTIER, with fluted border; the centre painted with three butterflies, the border painted with flowers in four compartments divided by panels of blue and gold. Marked in blue with the Chinese fretted square.

N. 2. COMPOTIER, painted and gilt with Japan pattern in four compartments divided by red panels. Unmarked.

N. 3. FLOWER VASE, with deep blue ground, painted with birds in compartments surrounded by gilt scroll borders in relief. Marked in blue with the Chinese fretted square.

N. 4. CUP and SAUCER, painted and gilt with conventional foliage in Japanese style. Marked in blue with Chinese square.

N. 5. COFFEE-CUP, painted and gilt with Japanese patterns, with oriental marks in blue.

N. 6. DOUBLE-HANDLED CUP on STAND, with COVER surmounted by a flower, richly painted and gilt

* "A Century of Potting in the City of Worcester," p. 55.

with conventional foliage in Japanese style. Marked in blue with Chinese square.

N. 7. CUP and SAUCER, painted with flowers in compartments with gilt borders on deep blue ground. Marked with crescent in blue.

N. 8. SMALL CUP, painted and gilt with conventional foliage in Japanese style in compartments with gilt borders on blue ground. Marked with crescent in blue.

N. 9. SAUCER, painted with birds and flowers in compartments on blue ground. Marked with crescent in blue.

N. 10. CUP and SAUCER, with fluted body, painted with flowers. Marked in blue with the Chinese fretted square.

N. 11. BASIN, with deep blue ground, painted with birds and insects in alternate compartments. Marked in blue with the Chinese fretted square.

N. 12. BASIN, painted in oriental style, with birds and flowers on white ground divided by deep blue panels with gilt flowers. Marked in blue with the Chinese fretted square.

N. 13. DISH, with fluted border, painted and gilt with Japan pattern. Marked in blue with *quasi* oriental characters.

N. 14. DISH, in oriental porcelain, decorated in similar style to N. 13, for which it has probably served as a pattern.

N. 15. DISH, with excentric radiating flutings, painted and gilt with conventional foliage in oriental style. Marked in blue with oriental characters.

N. 16. PLATE, with fluted border, decorated in same style as N. 15.

Presented by Sir J. Thorold, Bart., M.P.

N. 17. FRUIT BASKET, with open-work sides, painted with flowers, and scale pattern on deep blue ground enriched with gilding. Marked in blue with the Chinese fretted square.

N. 18. VASE and COVER, 10 inches high, painted and gilt in Japan style with spiral bands. Marked in blue with the Chinese fretted square.

N. 19. GALLON JUG, with mask beneath the spout, painted with birds and insects in panels, with gilt scroll-work borders on deep blue ground, ornamented with scale pattern. Marked in blue with the Chinese square, much blurred with the glaze. Cracked and rivetted.

N. 20. TWO-HANDLED CUP and SAUCER, painted and gilt with Japanese fan pattern. Marked with oriental characters in blue.

N. 21. TWO-HANDLED CUP and SAUCER, with blue and gold border, painted in centre with purple urn surrounded by floral festoons. Marked with the crescent in blue.

N. 22. TWO-HANDLED CUP, COVER, and SAUCER, with blue and gold border, painted with flowers. Marked with crescent in blue.

N. 23. SOUP PLATE, with fluted border and scalloped edge, painted in centre with English landscape in circular medallion surrounded by flowers and insects; bordered in blue and gold. Marked with crescent in blue.

N. 24. DISH, with simple oriental pattern pencilled in blue; the borders enriched with gilding. Marked with blue crescent.

N. 25. COFFEE-CUP and SAUCER, ornamented with a succession of parallel vertical lines in three horizontal rows traced in blue; the borders enriched with gilding. Marked with blue crescent.

N. 26. CUP and SAUCER, with blue and gold border, painted with flowers in similar style to N. 22. Marked with blue crescent.

N. 27. CUP and SAUCER, painted with flowers and butterflies. Marked in blue under the glaze with the crossed swords and figure 9.

N. 28. BASIN, painted and gilt in Japanese style with spiral bands alternately blue and red. Marked with blue crescent.

N. 29. HALF-GALLON JUG, with moulded body, painted with festoons of flowers, and blue border enriched with gilt festoons. Unmarked.

N. 30. DOUBLE-HANDLED VASE and COVER, 7 inches high, painted with flowers and birds in compartments on deep blue ground with scale pattern enriched with gilding. Marked in blue with Chinese fretted square.

N. 31. SMALL VASE and COVER, fluted body, painted with flowers in purple on white ground, with gilt scrolls bordering two of the groups. Marked with blue Chinese square.

N. 32. VASE and COVER, vermilion ground, with flowers in white, outlined in blue and gold. Marked with oriental characters in blue.

N. 33. PINT JUG, with specimen of early transfer-printing in black over the glaze (fig. 149); on one side a portrait of Frederick the Great being crowned by an angel with a laurel wreath, and inscribed "King of Prussia," with date "1757;" on the other side an allegorical figure of Fame, and in centre a military trophy with three flags bearing the names of his victories, "Reisberg, Prague, Collen, Welham, Rossbach, Breslau, Neumark, Lissa, Breslau." The engraving signed "RH Worcester."

A poem on the subject of this transfer-print appeared in the "Gentleman's Magazine" for December 1757, and was reproduced with slight alterations in Berrow's "Worcester Journal" for January 1758. This poem was addressed to Josiah Holdship, to whom the design of the decoration was then attributed:—

"What praise is thine, ingenious Holdship, who
"On the fair Porcelain the Portrait drew."

In justice to Hancock, who was really the engraver, the following couplet was annexed to the reprint of the poem in the "Worcester Journal":—

"Hancock, my friend, don't grieve tho' Holdship has the praise,
"'Tis your's to execute, 'tis his to wear the bays."

Fig. 149.

N. 34. CREAM JUG, with double twisted handle and black edge; ornamented in early black transfer-printing with preparation for tea drinking on one side and a tea party on the other. Marked in blue under the glaze with the Dresden brand of two crossed swords and the figure 9.

N. 35. SUCRIER and COVER, black edged, ornamented with Watteau groups in early black transfer-printing. Unmarked.

No. 36. SAUCER, in thin paste resembling "egg-shell," decorated in black with scene of lovers seated beneath a tree. Unmarked.

The style of ornamentation on this piece resembles that of the old Dresden china etched with a diamond by Baron Busch, Canon of Hildesheim.

N. 37. QUART MUG, ornamented in black transfer-printing with portrait of the Marquis of Granby crowned by a winged figure with laurel wreath; Britannia on one side and Fame on the other. Unmarked.

N. 38. QUART MUG, printed in black with portrait of the first Lord Chatham, in same style as N. 37. Unmarked.

N. 39. BASKET, with open-work sides, edged in red, and decorated with scene of milkmaids in a farmyard, printed in black over the glaze, and inscribed "☩, Worcester," with double anchor.

It is believed that the anchor was used as a rebus of the name "Holdship." That the engraving, however, was due to Hancock, is testified by the signature to the next piece.

N. 39*a*. CUP and SAUCER, printed in black with same subject as on N. 39, signed "*Hancock fecit.*"

Presented by J. E. Nightingale, Esq., F.S.A., 1870.

N. 40. DISH, with fluted border and black edge, printed in black with same subject as on N. 39, but the engraving not signed.

N. 41. CUP and SAUCER, printed in black in memory of the Princess Charlotte. Unmarked.

N. 42. TWO-HANDLED CUP and SAUCER, ornamented with classic scenes printed in purple outline and afterwards painted and gilt. Unmarked.

N.B.—The following series commences ou the third shelf of Case XXVIII.

N. 43. LEAF-SHAPED DISH, with thick body, painted deep blue. Mark, oriental characters in blue.

From the Bandinel collection.

Probably of Bow manufacture.

N. 44. LEAF-SHAPED DISH, ornamented with flowers printed in blue under the glaze. Workman's mark.

N. 45. LEAF-SHAPED DISH, of same shape as N. 44, printed with flowers and insects in blue, and painted with flowers in colours; coated with yellow glaze. Marked with crescent in blue.

N. 46. PLATE, painted with deep blue mottled ground, leaving eight compartments filled in with Chinese subjects in blue on white ground. Mark, oriental characters in blue.

Probably of Bow manufacture.

N. 47. SMALL PLATE, similar to last piece; oriental mark in blue.

Compare specimen of Bow china, H. 25.

N. 48. CUP, with ribbed body and gilt edge, printed with Chinese subject in blue under the glaze. Workman's mark, a cross.

N. 49. CUP and SAUCER, with pressed body and flowers printed in blue under glaze. Workman's mark.

N. 50. CUP and SAUCER, with pressed body and blue printed flowers. Workman's mark.

N. 51. CUP and SAUCER, with fluted body, painted in blue in Chinese style. Workman's mark.

N. 52. OCTAGONAL SAUCER, printed in blue in Chinese style. Workman's mark.

N. 53. SMALL SAUCE-BOAT, printed in blue in Chinese style.

Presented by Henry H. Treby, Esq.

N. 54. SAUCE-BOAT, ornamented with embossed flowers, and Chinese fishing-scene printed in blue. Workman's mark.

N. 55. LARGE SAUCE-BOAT, with ribbed body ornamented in blue in

Chinese style. Workman's mark, an arrow.

From the Bandinel collection.

N. 56. INKSTAND, with simple blue ornament and inscription, "M.S., 1767."

Some authorities have attributed this specimen to Plymouth, and others to Bow.

N. 57. CREAM JUG, painted in deep blue with Chinese subject. Unmarked, but a blue crescent representing the moon is introduced into the landscape.

N. 58. SMALL TEA-POT and COVER, with Chinese fishing subjects in deep blue. Workman's mark, an arrow.

N. 59. TEA-POT and COVER, in plain white china with pressed flowers; the body barrel-shaped, and the cover surmounted by a flower. Unmarked.

N. 60. TEA-POT and COVER, embossed with Chinese fishing-scene and flowers, and printed with flowers in blue; the body barrel-shaped, and the cover surmounted by a flower. Workman's mark.

N. 61. CUP and SAUCER, printed with Chinese subjects in blue. Workman's mark, a cross.

N. 62. BASIN and COVER, with pressed body and wicker-work border, ornamented with flowers printed in blue and edged with gold. Workman's mark.

N. 63. HALF-PINT MUG, ornamented with flowers printed in blue under the glaze. Marked in blue, W.

N. 64. COFFEE-CUP and SAUCER, with fluted and ribbed body, printed in blue with carnation and other flowers. Marked in blue, W.

N. 65. SMALL LADLE, printed in blue with same pattern as that on N. 64. Unmarked.

N. 66. DISH, of lozenge shape, with fluted border, pressed wicker-work rim, and gilt edge; painted with flowers and insects in blue and outlined with gold; border coloured green between red lines. Marked in blue, W.

N. 67. PLATE, with fluted border and blue and gold rim; centre painted with flowers in gilt-edged circular panel surrounded by flowers in purple camaieu. Marked in blue, W.

N. 68. PLATE, with pressed diaper border, ornamented in centre with flowers and insects printed in deep blue. Workman's mark.

N. 69. SMALL SAUCE-BOAT, with pressed body, printed with blue flowers. Workman's mark, three dots.

N. 70. } TWO SMALL SAUCE-
N. 71. } BOATS, of similar style to N. 69. Marked indistinctly with blue crescent.

N. 72. SMALL LEAF-SHAPED DISH, with blue feather-edge, printed with blue flowers. Marked with crescent in blue.

N. 73. TWO-HANDLED BASKET and STAND, with perforated COVER, ornamented with flowers in relief touched with blue; the centre printed in blue with flowers and fruit; the sides pressed with honeycomb pattern, bearing a blue quatrefoil in centre of each hexagon. Marked with blue crescent.

N. 74. CUP, printed with birds in deep blue. Marked with blue crescent.

N. 75. COFFEE-CUP, gilt edged, printed in deep blue, with Chinese fishing scene. Marked with blue crescent.

N. 76. SAUCER, printed with birds in deep blue. Marked with blue crescent.

N. 77. CUP and SAUCER, gilt edged, with blue-printed border; the centre painted with Chinese

figure subjects; the saucer marked with blue crescent, and the cup with workman's mark.

N. 78. CUP and SAUCER, gilt edged, printed in blue with Chinese subject. Marked in blue with the Dresden caduceus.

N. 79. SAUCER, with fluted border and gilt edge, painted in blue with quail pattern. Marked in blue with the Dresden crossed swords.

N. 80. COFFEE-CUP, of plain white body with gilt edge. Marked in blue with the crossed swords and figure 9.

N. 80*a*. COFFEE-CUP and SAUCER, with double twisted handle; turquoise-blue ground with gilt edge. Marked in blue with crossed swords and figure 9.

N. 81. JUG, with double twisted handle and cover surmounted by a flower; white body ornamented with richly-gilt flowers. Marked in blue with crossed swords and figure 9.

N. 82. PLATE, painted in blue in Chinese conventional style. Marked with blue oriental characters.

N. 83. PLATE, rudely painted with flowers and fruit in blue. Marked with blue oriental characters.

Probably of Bow manufacture.

N. 84. PLATE, with pressed edge, painted in deep blue in Chinese style. Unmarked.

Perhaps of Staffordshire make.

N. 85. BASKET, with twisted handles and open-work sides of diamond pattern, printed with flowers in blue. Marked with blue crescent.

N. 86. COMPOTIER, ornamented with pressed shell pattern and pressed edge, printed in blue with flowers and fruit. Marked with blue crescent.

N. 87. DISH, with embossed floral pattern and blue-printed border. Marked with blue crescent.

N. 88. DISH, with pressed border of wicker pattern, printed in blue with flowers. Unmarked.

N. 89. } PAIR of SALT-CELLARS,
N. 90. } of octagonal shape, printed in blue in Chinese style.

N. 91. TWO-HANDLED BASIN, COVER, and STAND, gilt edged, painted with flowers in deep blue. Marked in blue with royal arms.

N.B.—The following specimens are on the upper shelves, commencing with Case XXVIII.

N. 92. TWO-HANDLED SUGAR-BASIN and COVER, ornamented with sprigs of flowers and festoons in blue and gold. Marked with crescent in blue.

N. 93. BASIN, COVER, and STAND, ribbed body, ornamented with sprigs of flowers in blue and gold. Marked with blue crescent.

N. 94. BASIN and COVER, painted and gilt in Japan style with conventional foliage in compartments separated by blue bands. Marked in blue, "*Flight*," and a crescent.

N. 95. TWO-HANDLED VASE, with spirally-fluted body, ornamented in blue and gold. Marked in blue, "*Flight*," and a crescent.

N. 96. COFFEE-CUP, ribbed body with sprigs of flowers in blue and gold. Marked in blue, "*Flight*," and a crescent.

N. 97. COFFEE-CUP, with spirally-fluted body, ornamented with sprigs of flowers in black and gold. Unmarked.

N. 98. CUP, spirally-fluted body, with gilt flowers and insects, and

border in blue and gold. Marked with blue crescent.

Presented by Mrs. R. Barnett.

N. 99. CUP and SAUCER, rudely painted with quail pattern. Marked with "B" scratched in the paste.

N. 100. TWO-HANDLED VASE, 10½ inches high; green ground painted with large heart's-ease and anemone; the handles, rim, and foot being enriched with gilding. Impressed mark, "F. B. B." (Flight, Barr, and Barr), surmounted by a crown.

N. 101. SMALL VASE, in plain white porcelain with beaded border and ring handles pendent from eagles' mouths. Impressed mark, "B. F. B." (Barr, Flight, and Barr), surmounted by a crown.

N. 102. SMALL VASE, mounted on four claws; similar style to N. 101, but unmarked.

N. 103. SMALL AMPHORA and COVER, in plain white porcelain, with handles in form of satyrs' masks; the shoulder perforated with diamond pattern, and ornamented with bead border. Unmarked.

N. 104. COVERED CUP and SAUCER, delicately painted with arabesque scroll-work and birds on salmon-coloured ground, with gilt borders and white beading. Stamped "B. F. B.," with crown, and marked in red, "Barr, Flight, and Barr, Royal Porcelain Works, Worcester; London House, No. 1, Coventry Street."

N. 105. MUG and SAUCER, pencilled in gold with vermicular pattern. Impressed mark, "B. F. B." and crown.

N. 106. CUP and SAUCER, painted with landscapes in octagonal panels bordered in gold on fawn-coloured ground with gilt diamond pattern; the cup with view in Dove Dale, the saucer with view near Lymington, Hampshire. Marked in red, "Chamberlain's, Worcester."

Presented by C. H. Carruthers, Esq.

N. 107. QUART JUG, painted and gilt with conventional flowers in Japan style. Marked in red, "Worcester."

N. 108. SCENT BOTTLE (fig. 150), with double sides, the outer ornamented with perforated work painted and gilt; the neck decorated with flowers on yellow ground. Marked in red, "Chamberlain's, Worcester."

Fig. 150.

N. 109. COVERED VASE, with pierced honey-comb pattern, decorated in similar style to last piece. Marked in red, "Chamberlain's, Worcester."

N. 110. CUP and SAUCER, made for Lord Nelson, with baron's coronet, ducal coronet, and Order of San Josef in panels on a ground painted and gilt with conventional pattern in oriental style. Unmarked.

This cup and saucer formed part of the breakfast service ordered by Lord Nelson on his visit to Messrs. Chamberlain's works at Worcester, on August 27th, 1802. It has been erroneously stated that the service was presented to his lordship by the ladies of England.

N. 111. CUP and SAUCER, with impressed spiral pattern, ornamented with delicate lines in gold and turquoise-blue. Stamped with Kerr and Binns' mark, four W's in a circle, surrounding the figures 51.

N. 112. WORCESTER REGATTA MUG for 1846, with deep blue ground enriched with gilding, and inscribed "E. R. Rowlands, No. 2;" painted with view of Worcester, and marked in red, "George Grainger, Royal China Works, Worcester."

N.B.—The following pieces are placed at the back of the cases containing the Worcester China, XXVIII. to XXX.

N. 113. DISH, with marbled ground and gilt edge; centre ornamented with landscape in bat printing. Impressed mark, "B. F. B.," surmounted by a crown.

N. 114. PLATE, with gilt edge, the border ornamented with four small classic subjects in bat printing. Impressed mark, "B. F. B.," and crown.

N. 115. PLATE, with *bleu-de-roi* border enriched with gilt ornaments in relief; the centre beautifully painted with vase of flowers on dark ground; stamped "B. F. B." with crown, and marked in red "Flight, Barr, & Barr, Proprietors "of the Royal Porcelain Works, "Worcester, Established 1751; "Manufacturers to their Majesties "and the Prince Regent; London "Warehouse, No. 1, Coventry "Street."

N. 116. PLATE, with deep blue ground pencilled in gold; painted with butterflies in four compartments. Marked in red, "Chamberlain's, Worcester."

N. 117. PLATE, with gilt scroll edge, and green border painted with birds in panels. Marked in red, "Chamberlain's Worcester."

N. 118. PLATE, with gadroon edge in white and gold, hollow *bleu-de-roi* border, and centre painted with bunch of flowers. Marked in red, "Chamberlain's "Royal China, Worcester, & 155, "New Bond Street, London."

N. 119. PLATE with scroll-work border in relief; deep marone ground ornamented with gilt scroll-work and floral pattern in yellow and gold, with flowers painted in central panel. Marked in purple, "Chamber-"lain's, Worcester, & 155, New "Bond Street, London; Royal "Porcelain Manufacturers."

N. 120. PLATE, with blue border ornamented with flowers in six compartments, edged with gilt oak-leaf pattern; centre plain, surrounded by gilt border of rose, shamrock, and thistle. Impressed mark, "Chamberlain's, Worcester."

N. 121. PLATE, painted with exotic birds in centre, and flowers in three panels with richly gilt edges on deep blue border. Impressed mark, "Chamberlain's, Worcester"

N. 122. PLATE, painted with mulberries in centre, surrounded by pink border, ornamented with

gilt festoons jewelled with turquoise-blue enamel. Impressed mark, "Worcester Royal Porcelain Works."

N. 123. PLATE, painted and gilt in conventional Japan style. Marked in red, "Chamberlain's, Worcester."

N. 124. PLATE, painted with arms of Lord Nelson and baron's coronet, ducal coronet, and Order of San Josef; surrounded by border of oak leaves and acorns with blue festoons inscribed in gold, "Nelson, San Josef," and "Nelson, Aboukir." Unmarked.

N. 125. PLATE, with plain centre and pink border painted with birds in panels bordered in green and gold. Unmarked.

N. 126. PLATE, painted with flowers in centre and in three panels on blue border ornamented with gilt scroll-work and flowers. Unmarked.

N. 127. TWO-HANDLED VASE, 18 inches high; deep blue ground enriched with gilding, and ornamented with raised vine leaves in white and gold; twisted floriated handles, gilt; figure subject painted in panel with gilt scroll border, and inscribed on base, "Marguerito, the Rose Queen of Salency, Mrs. S. C. Hall." Marked in pink, "Chamberlain and Co., Worcester."

[On top shelf of Wall Case XXXVI.]

N. 128. } PAIR of large TWO-
N. 129. } HANDLED VASES, 25 inches high, apple-green ground, partly marbled, and enriched with gilding; with views painted in octagonal panels with gold and white borders, N. 128 with view of Worcester, and N. 129 with view of Malvern. Marked, "Grainger, Lee, and Co., Worcester."

These vases are, on account of their size, mounted on pedestals and placed outside the wall cases between the windows.

SHROPSHIRE POTTERY AND PORCELAIN.

[Wall Cases XXXI. and XXXII.]

About the year 1751 a small pottery was established at Caughley, near Broseley, in Shropshire. Under Mr. Thomas Turner, who came from the Worcester works in 1772, porcelain of a superior quality was manufactured, and usually decorated with Chinese subjects printed in a deep blue colour. Mr. John Rose, the founder of the Coalbrook Dale or Coalport works, was apprenticed to Turner, and about 1780 he commenced business at Jackfield. One of the oldest potteries in the county had been situated in this locality, and mention of "potters from Jackfield" is said to occur as early as 1560. A few years after Mr. Rose had established his works at Jackfield, he removed to Coalport on the opposite side of the Severn. On the retirement of Turner, in 1799, Mr. Rose purchased the Caughley works, and about the year 1814 removed the business to his manufactory at Coalport. In 1820 the Swansea and Nantgarw works were incorporated with the Coalport factory, and Messrs. Billingsley and Walker, of Nantgarw, were engaged there. About this period Mr. Rose introduced certain improvements, which gained for him the Society of Arts' gold medal (p. 51). It is to be regretted that at one time the marks of other manufactories were imitated at Coalport.

O. 1. QUART JUG in common brown ware, coated with black glaze, and ornamented with gilt scroll-work and initials "I. E."

From the collection of Enoch Wood.

This is a specimen of the early ware made at Jackfield in Shropshire. Such jugs are known locally as "black decanters."

O. 2. TEA-POT and COVER, in similar ware, with gilt inscription, "Richard and Ruth Gooddin, 1769."

O. 3. DISH in old Broseley pottery, gilt edged, with view of the city of Worcester printed in black.

From the Burns collection.—Presented by C. J. L. Eames, Esq.

O. 4. SMALL DISH in white porcelain, with shaped edge and fluted border, ornamented with gilding; stamped "SALOPIAN."

O. 5. CUP and SAUCER, with fluted and ribbed body, gilt edged; impressed mark S.

O 6. COFFEE-CUP, with ribbed body and gilt edge; unmarked.

O. 7. CUP in cream-coloured ware, with ribbed body, ornamented with gilt border inside; unmarked.

O. 8. CUP and SAUCER, painted with sprigs of flowers in blue, and gilt; marked in blue under the glaze S.

O. 9. TWO-HANDLED COVERED CUP and SAUCER, painted with flowers in blue, and gilt (fig. 151); marked in blue under the glaze S.

Fig. 151.

O. 10. SUGAR-BASIN and COVER, with ribbed body divided into compartments by blue vertical lines, and ornamented with flowers painted in blue and gilt; marked in blue under the glaze S.

O. 11. MUG, printed in Turner's deep blue with fruit, parrot, and butterfly; marked in blue S.

O. 12. MUG, printed in deep blue with flowers and insects; marked in blue with S and a butterfly.

O. 13. QUART JUG, with mask beneath the spout, printed in blue with flowers, and inscribed "James Kennedy, 1778;" marked in blue C.

O. 14. } TWO PLATES with
O. 15. } pressed borders, painted in deep blue with Chinese fishing scene; marked in blue S, and stamped "Salopian."

O. 16. } FOUR COFFEE-CUPS,
to } printed in deep blue
O. 19. } with Chinese fishing scene; marked in blue with Arabic numerals modified by flourishes so as to resemble oriental characters.

O. 20. to O. 23. FOUR CUPS and SAUCERS, gilt edged, and printed in blue in same style as Nos. O. 16 to 19, with similar marks.

O. 24. HEXAGONAL TRAY, with fluted border and gilt edge, printed in blue in same style as last, and marked with ornamental figure of 8.

O. 25. CUP and SAUCER, with fluted and ribbed body, printed in blue with flowers and fruit; marked in blue C.

O. 26. WASHING BASIN, printed in deep blue with flowers, fruit, and insects; marked in blue C.

O. 27. O. 28. PAIR of SOAP-DISHES, printed in pale blue with Chinese subjects; marked in blue C.

O. 29. DOUBLE-HANDLED VASE, 10½ inches high; painted in Chelsea style with birds and flowers, and enriched with gilding; marked in blue with C, and an anchor in imitation of Chelsea porcelain.

O. 30. DOUBLE-HANDLED VASE, 9 inches high; ornamented in same style as last piece, and marked in blue with C and anchor.

O. 31. COVERED CUP and SAUCER painted with birds in gilt-edged compartment on turquoise-blue ground richly gilt; marked in blue with two L's crossed in imitation of the mark on Sèvres porcelain.

O. 32. COVERED CUP and SAUCER, painted with Cupid in compartment on *bleu-de-roi* ground, enriched with gilding; marked in blue with two L's crossed in imitation of Sèvres.

O. 33. CUP and SAUCER, with gilt edge and flowers painted on white ground; marked with two L's crossed in imitation of Sèvres.

O. 34. CUP and SAUCER, painted with birds and bordered with *bleu-de-roi* enriched with gilding; unmarked.

O. 35. COVERED CUP and SAUCER, in "egg-shell china," in imitation of Chinese porcelain, pencilled with vermicelli pattern in gold; unmarked.

O. 36. DISH of FRUIT and FLOWERS, finely modelled, and painted in natural colours; marked in gold "*Coalport.*"

O. 37. OPEN-WORK VASE and COVER, formed of intertwined leaves and decorated with flowers in relief, painted and gilt; marked in blue under the glaze "*Coalport.*"

O. 38. LARGE TWO-HANDLED VASE, with perforated COVER, 20 inches high, painted with flowers in compartments; unmarked.

On account of its size, this piece is placed on the top shelf of Wall Case XXXVI., above the modern Staffordshire ware.

O. 39. OVAL DISH, painted with flowers, and ornamented with fluted border and pressed scroll-work; marked in red bat-printing, "Coal-" port improved Feltspar (*sic*) Por-" celain, patronized by the Society " of Arts; the gold medal awarded " May 30th, 1820, J. Rose and Co."

O. 40. PLATE, with pressed border, painted with flowers in similar style to last piece; mark, an impressed star.

O. 41. SHELL-SHAPED DISH in thick white porcelain, stamped with a star.

O. 42. RECTANGULAR PLAQUE, 6½ inches by 4½ inches, painted with group of fruit by Mr. Benlow's nephew.

O. 43. RECTANGULAR PLAQUE, 10 inches by 8 inches, painted with bunch of grapes.

O. 44. PLATE, painted with musical trophies in three compartments on green border enriched

with gilding; centre painted with fruit and a bird; marked in purple, "John Rose & Co., Colebrook Dale, 1850."

O. 45. PLATE, with *rose-du-Barri* border enriched with gilding, dividing the plate into four compartments with feather edges in blue, each painted with group of flowers and centre with trophy; mark as on No. O. 44.

O. 46. PLATE, with light blue border enriched with gilding, and painted in centre with fruit; mark as on No. O. 44.

O. 47. PLATE, with *bleu-de-roi* ground enriched with gilding, painted with flowers and fruit in centre, and with birds in three compartments on the border; mark as on No. O. 44.

O. 48. PLATE, painted in centre with birds, with *bleu-de-roi* border, gilt; mark as on No. O. 44.

O. 49. PLATE, with *bleu-de-roi* ground enriched with gilding, and painted in compartments with flowers and fruit; mark as on No. O. 44.

O. 50. PLATE, with *bleu-de-roi* ground enriched with gilding; the centre painted with order of Saint Andrew, the body ornamented with Russian orders painted on ivory-coloured ground in six compartments; marked in gold, "A. B. & "R. P. Daniell, 120, New Bond "Street, & 18, Wigmore Street."

Presented by Messrs. Daniell.

This plate is a specimen of the service executed by command of Her Majesty for presentation to the Emperor of Russia. It was exhibited in the Great Exhibition of 1851.

O. 51. DOUBLE-HANDLED COVERED CUP and SAUCER, painted and gilt with scroll-work, green borders, and figures of Cupid in scarlet medallions; marked in purple with monogram, "C. B. D." (Colebrook Dale), surrounded by inscription, "Daniell, London."

N.B.—A collection of specimens of modern Majolica ware, manufactured and presented by Messrs. Maw & Co., of the Benthall Works, near Broseley, in Shropshire, is arranged in Wall Cases XXXIX. to XLIV., near the modern Staffordshire series, and a catalogue of this collection will be found at p. 253.

SWANSEA EARTHENWARE AND PORCELAIN.

[Wall Cases XXXIII. and XXXIV.]

Earthenware works were established at Swansea about the year 1750, and the ware there manufactured was of much the same kind as that then produced at the Staffordshire potteries. The works, with the name of the "Cambrian Pottery," became much extended in 1790, under the management of Mr. George Haynes. About the close of the century he introduced a superior kind of ware, giving it the name of "Opaque China." In 1802 Mr. Lewis Weston Dillwyn purchased the Swansea works, and soon afterwards, by the aid of Mr. W. W. Young, the draftsman employed by him in his works on natural history, whom he had instructed in enamel painting, the opaque china became remarkable for beautiful and truthful painting of birds, butterflies, and shells, drawn from nature.

Although it would appear from passages in Donovan's "Excursions in South Wales and Monmouthshire" that a kind of porcelain was manufactured at Swansea towards the end of the last century, yet it was not until 1814 that the fine paste which obtained such repute as "Swansea porcelain" was produced. Respecting the introduction of this manufacture Mr. Dillwyn has afforded us the following information:—

"My friend Sir Joseph Banks informed me that two persons, named Walker and Beely,* had sent to Government, from a small manufactory at Nantgarw (ten or twelve miles north of Cardiff), a specimen of beautiful china, with a petition for their patronage, and that, as one of the Board of Trade, he requested me to examine and report upon that manufactory. Upon witnessing the firing of a kiln at Nantgarw, I found much reason for considering that the body used was too nearly allied to glass to bear the necessary heat, and observed that nine tenths of the articles were either shivered, or more or less injured in shape by the firing. The parties, however, succeeded in making me believe that the defects in their porcelain arose entirely from imperfections in their small trial-kiln, and I agreed with them for a removal to the Cambrian pottery, at which two new kilns, under their direction, were prepared. While endeavouring to strengthen and improve this beautiful body, I was surprised at receiving a notice from Messrs. Flight and Barr, of Worcester, charging the parties calling themselves Walker and Beely with having clandestinely left an engagement at their works, and forbidding me to employ them."

An excellent body was finally obtained at Swansea, and, as might be expected, the natural-history subjects painted upon it were most carefully executed. The manufacture was not, however, long continued. Other occupations engaging the attention of Mr. Dillwyn, the manufacture of porcelain was laid aside in 1817, and earthenware again became the sole product of the Swansea pottery, until about the year 1820, when the works were discontinued, and the appliances, having been purchased by Mr. Rose, were removed to Coalport.

The North Devon or Bideford clays seem to have been early employed at the Swansea works, as also the Dorset or Poole clays. Cornish kaolin and china-stone likewise formed a portion of the porcelain body. Steatite, from veins in the serpentine of the Lizard, Cornwall, was also employed during the manufacture of the porcelain. Flints were obtained chiefly as ballast in trading vessels and colliers, from the chalk districts of the south and south-east of England.

As regards marks, Mr. Dillwyn says that "the articles made at and "marked 'Swansea' include all, I believe, which have a more compact "fracture, and the addition of a trident denotes a supposed improvement, "which was ultimately not found to answer."

P. 1. EARTHENWARE FIGURE of infant with basket of flowers, in earthenware, painted in colours; marked in brown, "Cambrian Pottery."

P. 2. EARTHENWARE VASE, 8½ inches high; mottled blue body, with band of flowers painted on white ground; marked in brown, "*CAMBRIAN.*"

* *Beely* was a corruption of *Billingsley*, the name of Walker's father-in-law.

P. 3. EWER, of classic form, with trefoil lip and gilt handle; ornamented with Greek figures in white, outlined in black printing on blue ground; subjects, on one side Hector and Helen, and on the other side Hector and Andromache; stamped "OPAQUE PORCELAIN."

P. 4. EARTHENWARE DESSERT DISH, four lobed, with gilt edge; painted in centre with the kestrel (*Falco tinnunculus*), and marked on the back with the name of the bird; stamped "SWANSEA," and the letter C.

P. 5. EARTHENWARE DESSERT DISH, similar to last, painted with the hen harrier (*Falco cyanicus*); same mark.

P. 6. EARTHENWARE DESSERT DISH, similar to last, painted with the merlin (*Falco æsalon*); same mark.

P. 7. EARTHENWARE DESSERT DISH, oval, in same style as last piece, painted with the gray wag-tail (*Motacilla boarula*); same mark.

P. 8. EARTHENWARE CENTRE-PIECE, for dessert service, mounted on foot, with gilt edge; painted in centre with the golden eagle (*Falco chrysatos*); same mark.

P. 9. EARTHENWARE PLATE, gold edged, painted with three butterflies (*Papilio Ægeria*, *P. Cardui*, and *P. Jurtina*); unmarked.

Presented by Mrs. Dillwyn.

Nos. P. 4 to 9 inclusive are "opaque china."

P. 10. EARTHENWARE PLATE, white body with brown edge, painted in centre with the bladder hibiscus; impressed mark, "SWANSEA."

P. 11. EARTHENWARE PLATE, cream-coloured body, ornamented in early black transfer-printing *over* the glaze, with flowers in centre and vermicelli border between gold edges; impressed mark, "DILLWYN & Co."

P. 12. EARTHENWARE SUGAR-BASIN and COVER (fig. 152), gilt edged, and painted with butterflies with scientific names written on the inside (*Papilio Atalanta*, *P. Io.*, *P. lucina*, *P. Argus*, and *P. Artaxerxes*).

Fig. 152.

P. 13. EARTHENWARE SUGAR-BASIN and COVER, of similar shape to No. P. 12; with band of Greek fret pattern in gold.

P. 14. EARTHENWARE CUP and COVER, cream-coloured, ribbed body, with green edges and festoons in brown and black.

P. 15. EARTHENWARE CUP and COVER, painted with basket of flowers and river scene in square compartments edged in brown; inscribed in purple, "Made 1796, enamelled 1841, W.F.;" two handles broken.

P. 16 EARTHENWARE CUP and SAUCER, cream coloured, with brown edges, painted with border of flowers.

P. 17. } PAIR of EARTHENWARE
P. 18. } DISHES, cream coloured, with brown edges, painted in centre with fruit.

P. 19. Oval Plaque, in black frame of moulded earthenware, painted with figure of a Druid cutting mistletoe from the oak, by W. W. Young, about 1803 or 1805.

P. 20. Toilet Tray, painted and gilt with flowers.

P. 21. Porcelain Plate, with gilt scroll border, painted with the Hoopee; marked in red, "*Swansea.*"

P. 22. Porcelain Plate, with moulded edge and gilt scroll border; marked in red, "*Swansea.*"

P. 23. Porcelain Plate, with pressed border and gilt edge; marked in red, "*Swansea.*"

P. 24. Porcelain Plate; white border with embossed flowers; impressed mark, "SWANSEA" and a trident.

P. 25. } Two Porcelain Plates,
P. 26. } plain white body, with impressed mark, "SWANSEA," and a trident.

Nos. P. 21 to P. 26 presented by Mrs. Dillwyn.

P. 27. Porcelain Dish, of oval shape, with two handles and embossed border; impressed mark, "SWANSEA."

P. 28. Porcelain Basin, ornamented with scroll-work and flowers in green and gold; marked in red, "*Swansea.*"

Presented by Mrs. Dillwyn.

P. 29. Porcelain Cup and Saucer, with gilt edges and pressed border, similar to No. P. 23; marked in red, "*Swansea.*"

Presented by Mrs. Dillwyn.

P. 30. Porcelain Cup and Saucer, with gilt edges, painted with flowers; marked in red, "SWANSEA."

P. 31. Small two-handled Vase, of white porcelain, with pressed ornament; impressed mark, "SWANSEA."

Presented by Mrs. Dillwyn.

This vase is of the same body or paste as the specimens of Nantgarw porcelain, and was an experimental piece made on trial, in 1814 or 1815, to render the body more durable.

P. 32. Statuette; recumbent figure of a Roman, modelled in black ware, and stamped "SWANSEA."

P. 33. Double-handled Tazza, of Greek form (cylix), in red earthenware, painted with glazed black ground, leaving a female figure and classic border in red.

Presented by Lewis Dillwyn, Esq., M.P.

P. 34. Amphora, 15 inches high, of red ware, painted with glazed black ground, leaving classic figure-subjects in red.

Presented by Lewis Dillwyn, Esq., M.P.

On account of its size, this piece is placed on the top shelf of Wall Case XXXVII., above the modern Staffordshire pottery.

P. 35. Bracket, in red terra-cotta, after design by Michael Angelo.

Presented by Lewis Dillwyn, Esq., M.P.

This bracket is fastened to the wall near the case of Swansea specimens, and above the plaque G. 594.

Nantgarw Porcelain.

[Wall Case XXXIV.; upper shelves.]

In 1813 a porcelain manufactory was established at Nantgarw, near Cardiff, by Billingsley and Walker, who have been already mentioned in connexion with the Swansea porcelain. They produced a soft vitreous paste of very fine texture, breaking with a saccharoidal fracture. About the year 1820 Mr. John Rose, of Coalport, purchased the Nantgarw

works, and the appliances were transferred to Coalbrook Dale, where the services of Billingsley and Walker were continued until the death of the former in 1828. It would appear, however, that a manufactory of china was conducted at Nantgarw after Billingsley's removal in 1820. The following is an extract from a memorandum of agreement made on the 2nd February 1822, between Mr. David Morgan, of the town of Neath, ironmonger, of the one part, and William Weston Young, of the parish of Newton Nollage, land surveyor, of the other part, whereby it is agreed "that he [Morgan] shall not make bricks or any other articles from the "said sand [Dinas sand*] without the consent of the said Wm. W. Young, "who does also agree on his part to bind himself in the same manner and "under the same penalties [£5,000] not to reveal the said method to any "other person or persons, or to make any fire-brick or any other articles "for sale from the said sand without the consent of Mr. D. Morgan, but "that he shall at all times be at liberty to make the said materials for "his own purposes at *his china manufactory at Nantgarw* or elsewhere."

Q. 1. PLATE, with pressed border, blue edged, painted in centre with flowers; impressed mark, "NANTGARW" and initials "G. W." (George Walker).

Q. 2. PLATE, painted with centre and border of roses; same mark as that on last piece.

Q. 3. PLATE, with roses painted in centre and in compartments on border of green and white chequer pattern with gilt quatrefoils; same mark as on No. Q. 1, with insect painted on reverse.

Q. 4. PLATE, painted with large basket of flowers; same mark as on Q. 1.

Q. 5. PLATE, painted with flowers and fruit; same mark as on Q. 1, with insect and sprig of deadly nightshade.

Q. 6. PLATE, with border painted and gilt with festoons of flowers; centre painted with bird and butterflies; same mark as on Q. 1.

Presented by Mrs. Smyth.

Q. 7. PLATE, painted with flowers and insects in centre, and border of roses on ground sprinkled with gilt dots; same mark as on Q. 1, with two insects in colours.

Q. 8. PLATE, painted with flowers and insects in centre, with floral border on ground sprinkled with gilt dots; same mark as on Q. 1.

Q. 9. PLATE, with brown edge, painted in common style with birds and insects; same mark as on Q. 1.

Q. 10. SMALL CUP, with green and gold rim, ornamented with beaded border, and painted with rose and convolvulus; handle in form of dragon's head looking into the cup.

Q. 11. } TWO CUPS in an un-
Q. 12. } finished state, which appear to have been experimented upon with a view to obtaining the *bleu-de-roi* colour of Sèvres.

Presented by Joseph Murryat, Esq.

* This is a silicious deposit occurring in the Vale of Neath, in Glamorganshire, and valued for the manufacture of fire-bricks which are used in the construction of furnaces *for copper smelting.*

LEEDS POTTERY.

[Wall Cases XXXV. to XXXIX.]

Pottery was first manufactured at Leeds in 1760 by two brothers named Green. It is said that the earliest production was a black ware, but the manufacture of cream-coloured ware must have been soon afterwards introduced. The clays were brought from Devon and Cornwall; and probably Poole clay was employed from the commencement of the works.* The pottery was conducted at an early date under the style of "Humble, Green, and Co." Mr. Wilson has found the draft of an agreement, dated November 11, 1775, whereby "Joshua Green, of Middleton, gent., and "John Green, of Hunslet, potter, with divers others, under the firm of "Humble, Green, and Co.," agree with Messrs. Hutchinson and Evers to erect and maintain in repair at their mill a water-wheel with all necessary machinery for grinding flints. For thirteen years the wheel was to be used exclusively by Greens, who were to supply burnt flints and to pay 10*s.* for every 100 pecks of well-ground and levigated flints, the workman's wages being first deducted.

Subsequently the title of the firm was changed to that of "Hartley, Greens, and Co." At one time they carried on an extensive trade with Russia, their agent in that country being first Mr. Barwick, and afterwards his nephew, Mr. Jubb. As the Leeds pottery was found to effectually withstand the severity of the climate, it enjoyed almost a monopoly of the Russian market, until superseded by the lighter ware manufactured by Wedgwood. Illustrated pattern-books of the pottery were published by Messrs Hartley, Greens, & Co. One of these, printed in English, French, and German, is in the library of the Museum of Practical Geology, and bears the following English title: "Designs of sundry articles of Queen's "or Cream-colour'd Earthen-Ware, manufactured by Hartley, Greens, and "Co. at Leeds Pottery; with a great variety of other articles. The same "Enamel'd, Printed, or Ornamented with Gold to any Pattern; also with "Coats of Arms, Cyphers, Landscapes, &c. &c. Leeds, 1786." The French title-page in the same copy is dated 1785, while the German title bears as early a date as 1783. This copy, from which three plates are missing, was presented to the library by Mr. W. Sykes Ward, of Clay Pits House, Leeds. A second copy of the Leeds pottery pattern-book was presented in 1865 by Mr. Llewellyn Jewitt, F.S.A. It contains the three plates missing from the former copy, with many additional illustrations, but has no title-page. It is, however, of much later date, as the paper bears a water-mark dated 1814. The business of the Leeds pottery subsequently passed into the hands of Mr. Samuel Wainwright, then to Messrs. S. & J. Chappel, and finally to Messrs. Warburton and Britton.†

Much of the cream-coloured ware manufactured at Leeds bore considerable resemblance to Staffordshire pottery. Perforated work is frequently introduced, but is commonly confined to a few characteristic patterns. Although the ware was but rarely marked, several of the specimens in the

* In 1796, Hutchins mentions, in his *History of Dorset*, that much of the Poole clay was exported "to Selby, for the use of the Leeds potteries." (See *Ante*, *Note*, p. 6.)

† Considerable information concerning the history of the Leeds pottery was kindly furnished some years ago by Mr. Thomas Wilson, of Leeds, and Mr. William Warburton, the son of one of the present proprietors.

collection are stamped with the name of the pottery in full. The mark C. G. (Charles Green), and an arrow-head, are regarded as early marks.

R. 1. PLATE, in cream-coloured ware, 9¼ inches diameter, with perforated border.

R. 2. DISH, oblong, 13 inches by 11 inches; cream-coloured ware, with pressed rim and pierced border; stamped, "LEEDS POTTERY."

R. 3. DISH, circular, 6 inches diameter; cream-coloured ware, with pierced border; stamped in two places, "LEEDS POTTERY."

R. 4. DISH, circular, 7½ inches diameter; cream-coloured ware with perforated border and raised festoons; impressed mark, W (***).

R. 5. DISH, circular, 3¾ inches diameter; cream-coloured ware with pierced diamond-pattern border.

R. 6. DISH, oval, in deep cream-coloured ware, with moulded edge and perforated border.

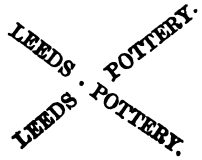
R. 7. DISH, oval, in deep cream-coloured ware, with shaped edge, and border divided into twelve compartments, of which six are ornamented with perforated work.

R. 8. DISH, of an oval lozenge shape, with pressed edge, and border divided into twelve compartments, each ornamented with perforated work.

R. 9. OVAL DISH, double-handled and mounted on foot, in stone-ware, with pressed rim, and perforated border and centre.

R. 10. SMALL DISH, with shell handle and pierced centre.

R. 11. OVAL OPEN-WORK BASKET, in white ware tinted with blue; stamped



R. 12. OVAL DISH, in cream-coloured ware with border perforated in eight compartments, and edged in black; ornamented with embossed festoons, and with black transfer-printing in centre representing figure of Liberty with lion couchant and military trophies; inscribed, "Voor Vryheid en Vaderland."

R. 13. OVAL DISH, in cream-coloured ware, edged in blue and painted with sprigs of flowers in blue, red, and green; stamped G, surmounted by a crown, with impressed diamond.

R. 14. HEART-SHAPED DISH, in cream-coloured ware, with egg-and-tongue border painted in black on red ground; stamped G, surmounted by a crown, with "WILSON" impressed and painted over in blue.

R. 15. OVAL DISH, with border perforated in twelve compartments, and ornamented with embossed festoons and female masks.

R. 16. OVAL DISH, in cream-coloured ware, with pressed border tinted in purple and ornamented with perforated work in eight compartments; the centre painted with portrait in purple, surrounded by gilt scroll border and flowers.

R. 17. OVAL DISH, in cream-coloured ware, with border divided into twelve compartments, painted alternately yellow and pink, separated by green ribs, and ornamented with perforated work; centre painted with flowers and insects.

R. 18. LARGE SOUP-TUREEN, in cream-coloured ware, ornamented with pressed scroll pattern, and pair of twisted handles terminated in floriated ornament.

R. 19. SMALLER SOUP-TUREEN and COVER, in cream-coloured ware, with twisted floriated handles, and cover surmounted by fruit.

R. 20. NIGHT LAMP, in cream-coloured ware; ornamented with embossed mask, perforated work, and twisted handles.

R. 21. CHESNUT BASKET, with COVER and STAND, in cream-coloured ware, elaborately ornamented with perforated work.

R. 22. OVAL BASKET, in deep cream-coloured ware, with sides divided into twelve compartments ornamented with perforations; twisted handles terminated in floriated work.

R. 23. OVAL BASKET, in cream-coloured ware, with perforated work and embossed festoons.

R. 24. CUP, in cream-coloured ware, with fluted body and perforated border.

R. 25. CUP, similar to last piece, but with pierced work of a different pattern.

R. 26. PINT MUG, in cream-coloured ware, with four beaded bands bearing traces of gilding; double crossed handle terminated in floriated work.

R. 27. CANDLESTICK, in cream-coloured ware, with pressed flowers and scroll pattern; the square shaft ornamented with pierced work.

R. 28. TEA-KETTLE, STAND, and COVER, in cream-coloured ware; the stand perforated, the cover surmounted by a flower, and the kettle furnished with a double twisted handle terminated in floriated work, and ornamented in black transfer-printing with allegorical subject, inscribed "Let Wisdom unite us."

R. 29. TEA-POT and COVER, in cream-coloured ware, with double twisted handle and floriated knob, ornamented in red and black with a wheatsheaf on one side, inscribed "Success to the Grain Return'd," and with a plough on the other side, inscribed "God speed the Plough."

R. 30. TEA-POT and COVER, in cream-coloured ware, ornamented with orange and brown bands; the body chequered in orange colour; stamped "LEEDS POTTERY."

R. 31. TEA-POT and COVER, with double twisted handle and floriated knob, rudely painted with male and female portraits, one on each side of an orange tree, inscribed "PVOR," and bearing a Dutch legend.

R. 32. CUP and SAUCER, in cream-coloured ware, decorated in same style as No. R. 31.

R. 33. CUP and SAUCER, in cream-coloured ware, ornamented in red transfer-printing, with similar subject to that on R. 28.

R. 34. CUP, in cream-coloured ware, with double crossed handle, painted with flowers in purple.

R. 35. QUART JUG, in cream-coloured ware, with double crossed handle; painted with flowers and inscribed "... Scudmore, 1771."

R. 36. DOUBLE-HANDLED COMPOTIER and DISH, in cream-coloured ware, with pierced diamond-pattern sides, painted with border of leaves in green and black.

R. 37. CIRCULAR CHEESE DISH, mounted on foot, in cream-coloured ware, with pierced border.

R. 38. CRUET-STAND, in cream-coloured ware, with pressed border and pierced sides.

R. 39. MUSTARD-POT, barrel shaped with cover and stand; cream-coloured ware with simple border in brown on canary-yellow ground.

Don Pottery.

[Wall Case XXXVIII.]

Towards the close of the last century the success of the Leeds pottery led to the establishment of several other manufactories in the district. About 1790 Mr. John Green left Leeds, and established a pottery at Swinton, on the River Don. Subsequently he was joined by other members of his family, and the title of the firm became "Greens, Clark, and Co." In 1834 the works were purchased by Mr. Samuel Barker, and are still in the possession of his family. The early pieces, chiefly of cream-coloured ware, are stamped with the name of the pottery in full.

R. 40. Circular Dish, in cream-coloured ware, diameter 12 inches, with pierced border and pressed wicker pattern in centre; stamped "DON POTTERY."

R. 41. Open-work Basket, of similar style to the last piece, but unmarked.

Castleford Pottery.

[Wall Case XXXIX.]

At Castleford, near Leeds, a pottery was established about the year 1790 by Mr. David Dunderdale. At the beginning of the present century the works were conducted by Messrs. D. Dunderdale and Co.; and the pieces of this date are inscribed "D. D. & Co." In 1820 the works were closed, but a part was afterwards taken by some of the workmen. Subsequently they passed into the hands of Messrs. Taylor, Harrison, and Co., who were succeeded, in 1854, by Messrs Thomas Nicholson and Co.*

R. 42. Plate, in cream-coloured ware, with simple floral border painted in brown; stamped, "D. D. & Co., CASTLEFORD."

R. 43. Tea-pot and Cover, in fine white ware, ornamented with raised female figures, and divided into compartments by blue lines. Impressed mark "D. D. & Co., CASTLEFORD."

R. 44. Tea-pot and Cover, in similar ware, ornamented with raised classic groups, and with strong blue lines. Impressed mark obscure.

The body of this piece resembles that of "Pearl Ware."

R. 45. Candlestick, in similar ware, ornamented with blue lines and with floral scroll in red and green entwining the shaft. Unmarked.

Ferrybridge Pottery.

[Wall Case XXXVIII.; top shelf.]

A pottery was established in 1792 at Ferrybridge by Knottingley, near Pontefract, in Yorkshire. Originally conducted under the name of Tomlinson and Co., the firm assumed the style of Wedgwood & Co. on the

* "Marks and Monograms on Pottery and Porcelain," by W. Chaffers, F.S.A., *3rd ed., 1870, p. 582.*

introduction in 1796 of Ralph Wedgwood, the son of Thomas Wedgwood, who was the partner of the great Josiah Wedgwood, many of whose productions were imitated at this pottery.*

R. 46. LARGE FIGURE GROUP, 16½ inches high, in coloured glazed earthenware, representing two amorini struggling for a quiver of arrows. Impressed mark "WEDGWOOD & CO."

PLACE'S WARE.

[Wall Case XXXIX.]

A fine description of pottery was manufactured at an early date by Mr. Francis Place at the Manor House at York. Mr. Place was a son of Mr. Rowland Place, of Dimsdale, in the county of Durham, and acted as clerk to an attorney in London until 1665. The remainder of his life was apparently devoted to artistic and experimental pursuits. He died in 1728. Ralph Thoresby states, in his *Ducatus Leodiensis*, that Mr. Place discovered an earth well fitted for the manufacture of fine ware, and that "his pottery cost him much money; he attempted it solely from a turn "for experiments, but one Clifton took the hint from him, and made a "fortune by it." One of "Mr. Place's delicate fine muggs," said to have been "equal to true China ware," was in Thorseby's museum, and is described as being "made of English materials in the Manor House at York, "by the very ingenious Mr. Francis Place, who presented it to me, with one "of the outer covers [saggers], purposely made to preserve them from the "violence of the fire in baking."

Lord Orford (Horace Walpole) says, "I have a coffee-cup of his ware; it "is of gray earth, with streaks of black, and not superior to common earthen-"ware." This cup was sold at Strawberry Hill, and passed into the hands of Mr. A. W. Franks, by whom it was presented, in 1869, to this Museum.

R. 47. SMALL CUP (fig. 153), in thin glazed grayish ware, streaked with black and brown, ornamented with a narrow rib running horizontally round the vessel at about one third from the base. Height, 2½ inches; diameter of rim, 2⅛ inches.
Presented by A. W. Franks, Esq., M.A., F.S.A.

An old pasteboard label, attached to the handle of this cup, is inscribed, probably in Walpole's handwriting, "Mr. Francis Place's China."

R. 48. CUP of similar form, in white ware, embossed with flowers. Purchased of the late Mr. Burns, who regarded it as a specimen of Place's ware, but it may be oriental.

Fig. 153.

* Chaffers' "Marks and Monograms," 3rd ed., 1870, p. 583.

Liverpool Pottery and Porcelain.

[Wall Case XXXIX.]

In the list of town-dues payable at the port of Liverpool in 1674, Mr. Mayer finds several items showing that the manufacture of pottery was established in the town at that early date. Specimens of Liverpool ware referable to the early part of the eighteenth century are still extant, two specimens of blue-painted coarse ware being dated respectively 1716 and 1722. In a description of the town published in "The Liverpool "Memorandum Book, or Gentleman's, Merchant's, and Tradesman's Daily "Pocket Journal for the year 1754," it is stated that "the chief manu- "factures carried on here are blue and white earthenware, which at "present almost vie with china." Indeed, at one time pottery appears to have been the staple manufacture of the town.

The principal Liverpool potters were Alderman Shaw, James Drinkwater, Richard Chaffers, Seth Pennington, Philip Christian, and Zachariah Barnes. Large bunch-bowls of delft ware painted in blue were made by both Shaw and Pennington, and the latter manufactured china resembling oriental porcelain and ornamented with a rich blue colour.

To Mr. John Sadler, of Liverpool, is generally attributed the honour of having discovered the useful art of printing on pottery from copper-plate engravings. He was the son of Mr. Adam Sadler, a printer in Liverpool, who had formerly served as a soldier under the Duke of Marlborough in the wars in the Low Countries. John Sadler carried on the business of an engraver in Harrington Street, and having noticed that some of his waste prints were used by children to stick on to fragments of earthenware obtained from the potteries, he commenced experiments with the view of extending this application to purposes of decoration. With this object he associated himself, about the year 1750, with Mr. Guy Green, who had succeeded to the printing business of Mr. Adam Sadler. It was proposed to apply to the King for a patent, and the documents necessary for this purpose were prepared; but it was afterwards considered desirable to keep the process secret and not to secure patent rights. The documents are now in the possession of Mr. Joseph Mayer.*

Much of Wedgwood's cream-coloured ware was sent weekly by carrier's waggon from Staffordshire to Liverpool, were it was printed by Sadler and

* Mr. Mayer publishes, among other documents, the following affidavit: —

"I, John Sadler, of Liverpool, in the county of Lancaster, printer, and Guy Green, of Liverpoole aforesaid, printer, severally maketh oath, that on Tuesday, the 27th day of July instant, they, these deponents, without the aid or assistance of any other person or persons, did, within the space of six hours, to wit, betwixt the hours of nine in the morning and three in the afternoon of the same day, print upwards of twelve hundred earthenware tiles of different patterns at Liverpoole aforesaid, and which, as the deponents have heard and believe, were more in number and better and neater than one hundred skilful pot painters could have painted in the like space of time in the common and usual way of painting with a pencil; and these deponents say that they have been upwards of seven years in finding out the method of printing tiles, and in making tryals and experiments for that purpose, which they have now, through great pains and expense, brought to perfection.

"(Signed) John Sadler,
"Guy Green.

"Taken and sworn at Liverpoole in the County of Lancaster, the second day of August, one thousand seven hundred and fifty-six, before Wm. Statham, a master extraordinary *in Chancery*."

Green, and afterwards returned by the same means to Wedgwood. Even as late as 1794 this arrangement was continued.

On a site formerly occupied by copper works on the south side of the Mersey, near Liverpool, a pottery was started about 1794 by Messrs. Abbey and Graham. Mr. Richard Abbey had been an engraver in the employ of Mr. Sadler, and had afterwards been engaged at potteries in Glasgow and in France. He soon retired from the business, which then passed into the hands of Messrs. Worthington, Humble, and Holland. They engaged a number of operatives from the Staffordshire potteries, and founded the colony called Herculaneum. About the year 1800 the manufacture of china was introduced. In 1806 the works were enlarged, and the number of proprietors increased. The Company was dissolved in 1833, and the property sold. Messrs. Case and Mort then leased the pottery of the purchaser, and carried on business there until 1836, when it passed into the hands of Messrs. Mort and Simpson, who occupied it until 1841. At that date the pottery was discontinued, and the site occupied by the Herculaneum Dock.*

S. 1. PLATE, in white glazed earthenware, ornamented with border of wild roses and buds, painted in proper colours on purple ground, edged in black. Mark, "HERCULANEUM," impressed, and "1653" written in black.

S. 2. SALAD BOWL, double-handled, with open-work sides, ornamented in similar style to last piece. Stamped "HERCULANEUM."

Nos. S. 1 and 2 presented by the Rev. Thomas Staniforth, M.A.

S. 3. } PAIR of TOY PLATES;
S. 4. } diameter 3¾ inches, with pressed edges, ornamented with views in brown transfer-printing. Stamped with the liver.

Presented by A. W. Franks, Esq., M.A.

The bird known as the liver, forming the crest of the borough of Liverpool, was used as a mark at the Herculaneum pottery by Messrs. Case, Mort, and Co.

S. 5. CUP and SAUCER, in Herculaneum porcelain, painted with flowers and birds, and gilt edged.

Presented by Miss Ffarington.

S. 6. SQUARE TILE, with specimen of early transfer-printing in red; subject, a family group with father playing the flute and children dancing.

S. 7. PINT MUG, with specimen of early printing in black from a copper plate, over the glaze, inscribed "Sadler, Liverpool;" subject, the Bucks' Arms; coat of arms with stag in centre and motto, "Freedom with Innocence;" crest, a plough with motto, "Industry produceth Wealth;" supporters, two huntsmen, and legend, "We obey;" below, a figure group inscribed "Unanimity is the strength of Society;" and on each side allegorical figures.

S. 8. BOWL in stone-ware, ornamented in relief with flowers and the bird known as the liver, with sprig of liver-wort in its mouth.

S. 9. PUNCH-BOWL, of unusually large size, 20½ ins. diameter; delft ware, ornamented with military trophies on the outside, and a three-masted man-of-war on the inside painted in blue, with sea coloured green, and with red on the union-jack, ensign, and pennant.

This large specimen is placed on the top shelf of Case XXXIX. The trophies are very similar to those on a bowl figured by Mr. Mayer,† said to have been made at Seth Pennington's and painted by John Robinson. The succeeding specimens are placed on the bottom shelves of Cases XXXVIII. and XXXIX.

* For the information given in this notice of Liverpool pottery we are indebted to a "History of the Art of Pottery in Liverpool," by Joseph Mayer, F.S.A.

† "History of the Art of Pottery in Liverpool," 1855, p. 22.

S. 10. PUNCH-BOWL, in delft ware, 10¼ ins. diameter, painted in blue with scrolls on the outside, and the following verses on the inside :*

" John Udy of Luxillion
" his tin was so fine
" it glidered this punch bowl
" and made it to shine
" pray fill it with punch
" lett the tinners sitt round
" they never will budge
" till the bottom they sound.
" 1731."

S. 11. PUNCH-BOWL, in delft ware, 6¾ inches diameter; painted with blue border and inscription, " Success to Trade."

S. 12. PUNCH-BOWL, 7¾ inches diameter, painted in blue outside with fishing scene in Chinese style, and inside with inscription, " Wilkes and Liberty."

S. 13. PUNCH-BOWL, in delft ware, painted in blue, red, yellow, and green; 12 inches diameter; flowers on the inside, and armorial bearings with motto, " God grant Unity," on the outside; inscription on the bottom in blue, " W. R. H., 1749."

S. 14. PUNCH-BOWL, in delft ware, 14 inches in diameter; ornamented with flowers painted in blue, and inscription, " Parliment (*sic*) Bowl, free without Excise, 1736."

(On top shelf, Case XXXIX.)

S. 15. PUNCH-BOWL, in delft ware, 9½ inches diameter, painted in blue inside, with a three-masted man-of-war in sail, inscribed, " Success to the Friend-ship, 1766."

The shelf below the Leeds and Liverpool ware is occupied by a collection of miscellaneous specimens of old English pottery, none of which are marked. They are mostly of Staffordshire ware, but some may probably be attributed to Newcastle. Those which present examples of early transfer-printing were in all likelihood decorated at Liverpool.

S. 16. QUART MUG, in coarse white glazed delft ware, rudely painted with conventional flowers in blue and red.

S. 17. QUART MUG, in cream-coloured ware with representation of a toad inside to surprise the drinker; the outside decorated with the following legend painted in black, and surrounded by a rude floral border in colours :—

" Tho' malt and venom
" Seem united
" Don't break my pot
" Nor be affrighted."

Compare the Newcastle frog mugs, T. 3 and 4 (p. 199).

S. 18. PINT JUG, in cream-coloured ware, painted with border of strawberries running round the neck, and ornamented with two views neatly painted in oval medallions pendent from a wreath, and with cypher " WF " inscribed in a shield decorated with landscape in brown monochrome.

S. 19. PINT JUG and COVER, in cream-coloured ware, ornamented in early black transfer-printing, with two scenes of country courtship; probably Liverpool printed.

S. 20. QUART MUG, in coarse cream-coloured ware, ornamented in black transfer-printing, inscribed, " Jameson," and rudely painted in red, yellow, and green; subject, " Tythe in kind, or the Sow's Revenge;" a clergyman collecting tithes attacked by a sow in a pig-

* These verses have allusion to the use of Cornish tin, which, in the form of binoxide, is employed in the preparation of the opaque white enamel of delft ware. *Udy* is a common Cornish name, and *Luxillion* is a parish about three miles from Lostwithiel. The old verb *glidder*, which occurs in the third line, signifies " to glaze;" thus in *The Devil is an Asse* Ben Jonson writes, " keep it in your galley-pot well *gliddered*."

stye to the amusement of the farmer's family, and crying,

"The fattest Pig it is my due
"Oh! Save me from the Wicked Sow."

S. 21. QUART MUG, printed in black, with farmer and wife offering babe to the vicar, with doggrel entitled "The Tithe Pig."

"In Country Village lives a Vicar
"Fond as all are of Tithes and Liquor
"To Mirth his Ears are seldom Shut
"He'll Crack a Joke and Laugh at Smut
"But when his Tithes he gathers in
"True Parson then no Coin no Grin
"On fish on flesh on Bird on Beast
"Mike lays hold the Churlish Priest.
"Hob's Wife and Sow as Gossips tell
"Both at a time in Pieces fell
"The Parson comes the Pig he claims
"And the good Wife with Taunts inflames
"But she quite Arch bow'd low and Smil'd
"Kept back the Pig and held the Child
"The Priest look'd gruff the Wife looked big
"Z——ds Sr. quoth She no Child no Pig"

S. 22. PINT MUG, barrel shaped, in common ware, printed in black and rudely painted in colours with drinking party, inscribed, "J. Ansley, Lane End;" ornamented with the following verses:—

"*The General Toast.*

"1.

"Here's to the maid of bashful fifteen
"Likewise to the matron of Fifty
"Hear's (*sic*) to the bold and extravagant Queen
"And heres to the housewife thats thrifty.
"Let the toast pass, drink to the lass
"I'll warrant she'll prove an excuse for the glass.

"2.

"Here's to the maiden whose dimples I prize
"Likewise to her that has none sir
"Here's to the maid with a pair of black eyes
"And here's to her thats but one sir.
"Let the toast, &c.

"3.

"Here's to the maid with a bosom of snow
"And to her thats as brown as a berry
"Here's to the wife with a face full of woe
"And here's to the girl that is merry.
"Let the toast, &c.

"4.

"Let her be Clumsy or let her be slim
"Young or antiant I care not a feather
"So fill a pint Bumper boys up to the brim
"And e'en let us toast them together.
"Let the toast pass Drink to the lass
"I'll warrant she'll prove an excuse for the glass."

S. 23. PINT MUG in coarse ware, coated outside with orange-coloured enamel, and ornamented in relief with two full-length portraits of Lord Rodney and oval medallion with ship, laid on in cream-coloured paste tinted green.

The vessel represented on this mug is De Grasse's flag-ship *Ville-de-Paris*, which was taken by Rodney in 1782. The same event is celebrated in Derby china by the well-known "Rodney Jug."

S. 24. QUART JUG, in white ware, with crimson border, ornamented in purple transfer-printing over the glaze with a three-masted man-of-war in full sail on one side, and on the other side a copy of West's picture of the Death of General Wolfe, 1759; probably Liverpool printed.

S. 25. QUART JUG, in white ware, with blue band round the neck; the body ornamented with transfer-printing in red outline painted in colours.

On one side a hay-making scene; on the other side John Bull seated on a column inscribed "The British Constitution," and looking across the Channel at Napoleon, who is weeping at the loss of the flotilla and exclaiming, "O! my poor "Crazy Gun Boats, why did I venture so "far from home;" while the Englishman cries, "I Told you they would be all

" swamp'd, but you would be so d——d
" Obstinate;" the whole inscribed, "Patience on a Monument smiling at Grief!!" with the following distich :—

"The Mighty Chief with fifty thousand Men
"March'd to the coast, and March'd back again
"Ha! Ha! Ha!"

S. 26. PINT JUG, in common white ware, ornamented in relief with naval portraits rudely coloured; on one side Admiral Nelson and on the other side Captain Berry.

S. 27. PINT FLASK, in common ware, ornamented on each side with a coloured full-length portrait of Admiral Nelson in relief, surrounded by flowers in blue transfer-printing; inscribed at the bottom in blue "D. R."

S. 28. QUART JUG, printed in blue with portrait of Nelson and figure of the "Victory," inscribed with Lord Nelson's titles.

S. 29. PINT MUG, printed in brown with the "Farmer's Arms," and mottoes, "All our Trust is in God," and "Industry produceth Wealth," with following verses :—

" May the Mighty and Great
" Roll in Splendor and State
" I envy them not I declare it;
" I eat my own Lamb,
" My Chicken and Ham
" I shear my own Sheep and I wear it;
" So you jolly Boys now
" Here's God speed the Plough
" Long life and content to the Farmer."

S. 30. QUART MUG, printed in black with Duncan's ship "Venerable" in full sail towing De Winter's ship "Vryheid," inscribed with the following verse :—

" Vain are the Boasts of Belgick's sons
" When faced by British ships and guns
" Tho de Winter does in Autumn come
" Brave DUNCAN brings his harvest home."

Presented by A. W. Franks, Esq., M.A., F.S.A.

S. 31. PINT MUG, printed in black with view of the Thames Tunnel and portrait of the engineer, Sir I. M. Brunel, F.R.S.

S. 32. LARGE JUG, 9 inches high, in cream-coloured earthenware; ornamented in front with the initials "T. C." painted in brown, and surrounded by a wreath; on one side a ship in sail printed in black and touched with colours; and on the other side an allegorical subject representing the four quarters of the globe presenting offerings to Britannia, who holds the cap of liberty; inscription "Commerce Revived."

[On top shelf, Wall Case XXXVIII.]

S. 33. JUG of unusually large size, 13 inches high, in cream-coloured earthenware, ornamented in front with the initials "A. H.," painted in black, and surrounded by a garland; on one side an English landscape printed in black, and on the other side the Blacksmith's arms printed in black, with motto, "By Hammer and Hand, all Arts do stand."

[On top shelf, Wall Case XXXVIII.]

S. 34. TEA-POT of unusually large size; height, 12 inches; diameter of body, 10 inches; cream-coloured earthenware painted in blue, with flowers and inscription, "George Wilson, 1778."

[On top shelf, Wall Case, XXXIX.]

NEWCASTLE AND SUNDERLAND POTTERY, &c.

[Wall Cases XL. to XLIV.]

A considerable manufacture of common earthenware has long been carried on in the North of England, especially in the neighbourhood of

Newcastle and of Sunderland. As early as 1730 or 1740 the manufacture of white earthenware was introduced into the district by Mr. Warburton at the Carr's Hill pottery, near Gateshead, on the Durham side of the Tyne; a pottery which, after having been successfully conducted for seventy years, gradually declined and was closed in 1817. About 1755 Mr. Byers established works at Newbottle, and in 1762 Messrs. Christopher Thompson and John Maling erected potteries at North Hylton, near Sunderland. In 1817 Mr. Robert Maling removed the business from Hylton to the Tyne. Messrs. Dawson established a pottery at Hylton in 1800, and Messrs. Phillips have also had works at this locality. At Southwick, near Sunderland, Scott and Co. erected potteries in 1789, and Moore and Co. in 1803. About the beginning of the present century, Messrs. Dixon, Austin, and Co., and Messrs. Phillips, had potteries in the neighbourhood of Sunderland.

At St. Anthony's, near Newcastle-upon-Tyne, potteries were established between the years 1780 and 1790, and many pieces from these works bear the mark of Sewell and Donkin. St. Peter's pottery, near Newcastle, was built by Thomas Fell and Co. in 1817.

At present there are about twenty-five potteries on the Tyne, the Wear, and the Tees, producing earthenware of the annual value of 190,000*l.**

T. 1. FRUIT-DISH and STAND, in cream-coloured ware, with pierced border and embossed wicker pattern, having group of fruit in centre; impressed mark, "FELL, NEWCASTLE;" the latter word in a semicircle with number "12" stamped beneath.

T. 2. FRUIT BASKET, in cream-coloured ware, with impressed wicker pattern at bottom and open-work sides of plaited twigs; impressed mark, "FELL."

T. 3. FROG MUG, printed in black, with monument and trophies in memory of Lord Nelson; inscribed, "Newcastle Pottery."

Presented by G. G. Francis, Esq., F.S.A.

A frog or toad is represented climbing up the inside of the vessel, so that as the liquid is drunk the creature appears to be leaping into the drinker's mouth. Compare No. S. 17.

T. 4. FROG MUG, ornamented with border of purple metallic lustre, surrounding the following verses, printed in brown beneath a ship:—

"Thou noble bark of brightest fame,
"That bear'st proud England's honourd name,
"Right welcome home once more!
"Welcome thou gallant little sail
"In England's name I bid the (*sic*) hail!
"And welcome to her shore."

T. 5. PINT MUG, printed in black, with "An East View of the Iron "Bridge Over the Wear, near "Sunderland; Foundation stone "laid by R. Burdon, M.P., Sept. "24th, 93;" inscribed "Edward Barker."

The celebrated cast-iron bridge over the Wear, uniting Monkswearmouth and Bishopswearmouth, was commenced in 1793 and completed in 1796. It consists of a single arch of the enormous span of 236 feet 8 inches, weighing 260 tons, and rising to the height of about 100 feet above the level of the water.

T. 6. LARGE JUG, ornamented with purple metallic lustre, printed in black transfer and rudely coloured; on one side the "North-

* Mr. Christopher Thompson Maling's notice in "The Industrial Resources of the District of the Three Northern Rivers, the Tyne, Wear, and Tees" (2nd ed., 1864, p. 205), to which we are indebted for many of the facts stated above.

umberland 74," on the other, "A "south-east view of the Iron "Bridge over the Wear, near "Sunderland," inscribed, "J. PHILLIPS, HYLTON POTTERY;" on front the following verses, surrounded by a garland of rudely-painted flowers :—

"Forget me not.

"The sailor tost in stormy seas,
"Though far his bark may roam,
"Still hears a voice in every breeze
"That wakens thoughts of home:
"He thinks upon his distant friends
"His wife, his humble cot;
"And from his inmost heart ascends
"The prayer Forget me not!

"Barten."

T. 7. EARTHENWARE BOWL, ornamented with nautical subjects in transfer-printing, rudely coloured over the glaze and bedaubed with purple metallic lustre; on the outside the mariner's compass, bridge over the Wear, and same verses as on following piece; on inside, the mariner's compass, Sailor's Farewell, and ship with couplet as on T. 8; in centre the following verses :—

"Glide on my bark, the summer's tide,
"Is gently flowing by thy side;
"Around thy prow the waters bright,
"In circling rounds of broken light,
"Are glit'ring as if Ocean gave,
"Her countless gems to deck the wave."

T. 8. EARTHENWARE SLAB, printed in black and rudely coloured; the border in form of a frame painted with purple metallic lustre; subject in centre, a man-of-war in full sail, inscribed,—

"May Peace and Plenty on our Nation Smile
"And Trade with Commerce bless the British Isle."

T. 9. LARGE JUG, similar to T. 6; ornamented with black transfer-printing, rudely coloured, and enriched with purple metallic lustre; on front the verses, "Forget me not," surrounded by a garland; on one side a view of the cast-iron bridge over the Wear, and on the other side the Farmer's Arms, and inscription, "DIXON, AUSTIN, & Co., SUNDERLAND."

T. 10. FIGURE, representing Winter, coarsely modelled and painted; height, 9¼ inches; impressed mark, "DIXON, AUSTIN, & Co."

T. 11. LARGE JUG, in white-glazed earthenware, ornamented with raised Bacchanalian figures on body, and border of vine round the neck, coarsely coloured and enriched with purple metallic lustre; impressed mark, "SEWELL."

T. 12. OPEN-WORK FRUIT BASKET, in cream-coloured ware, embossed with wicker-pattern; impressed mark, "SEWELL & DONKIN."

T. 13. OVAL FRUIT BASKET, in cream-coloured ware, with pierced border; impressed mark, "SEWELLS & DONKIN."

T. 14. CRUET STAND, 11 inches high, in cream-coloured ware, with central shaft in form of a tree-trunk surmounted by a bird; furnished with two pepper castors and three bottles; impressed mark, "SEWELLS & Co."

T. 15. CUP and SAUCER, in white-glazed earthenware, with border of leaves in coppery lustre on blue ground; impressed mark, "SCOTT."

T. 16. SMALL DISH, in common white ware, printed in blue with an English landscape; impressed mark, an anchor and "MIDDLESBRO' POTTERY."

T. 17. FRUIT BASKET and STAND in cream-coloured ware, with pierced border and embossed sides; impressed mark, "W. S. & Co., QUEEN'S WARE, STOCKTON."

NOTTINGHAM EARTHENWARE.

[Wall Case XL.]

It is known that the manufacture of certain kinds of pottery, especially a brown-glazed earthenware, was long carried on in the town of Nottingham, and was probably not abandoned until the beginning of the present century. In a list of trades and employments exercised in the town, with the number of masters in each, made in 1641, one potter is mentioned, and in a similar list for 1739 two potters appear. About the middle of the last century the trade became more active, and Dr. Deering in his *Historical Account of Nottingham* (1751) mentions that the town sends down the river (Trent) coals, lead, timber, corn, wool, and *potters' ware*. Under the year 1757 in Bailey's *Annals of Nottinghamshire*, we read that, "Mr. Morley was a manufacturer of brown earthenware, carrying "on his works in the lower part of Beck Street, on the road to St. Ann's "Well; and by this business he amassed a very considerable fortune. "This ware was at one time of great celebrity throughout the whole of the "Midland Counties, especially its famous brown mugs for the use of public-"houses; and it is remarkable that though these works have been dis-"continued now for a hundred years,* the appellation of *Nottingham ware* "is still, in many remote villages, attached to the better and more highly "finished class of brown earthenware pots of every description." No fewer than twelve pot makers are mentioned in "An exact list of the "Burgesses and Freeholders of the town and county of the town of "Nottingham . . . . who polled . . . . at the election of "Two Burgesses to serve in Parliament," in 1774, but in a similar list for 1803 only one potter is named. The cause of the decline of the trade was the competition of the Staffordshire manufacturers. Thus, Blackner in his *History of Nottingham*, published in 1815, says that "there were like-"wise two potteries within the last thirty years . . . . But the clay "was principally brought from a considerable distance, which added so "much to the cost of the pots as to prevent the proprietors maintaining "a competition with the Staffordshire dealers."

Mr. Morley's pottery was situated in Mug House Yard, Mug House Lane, Beck Street, and the other works mentioned by Blackner were on the east side of what is now Milton Street.

It is believed that some part of the clay used for the brown ware was obtained from the neighbourhood of Hucknall Torkard, in Nottinghamshire, while a yellow clay was procured from Staffordshire.†

U. 1. CHRISTENING BOWL, 13 inches diameter, in brown-glazed earthenware, ornamented with a double incised band round the rim, and inscription in cursive characters, "*Nouember* 20, 1726."

Presented by Miss Lakin, of Nottingham.

U. 2. PUNCH BOWL, of unusually large size, 22 inches in diameter, in brown-glazed earthenware, with incised inscription in cursive characters, "*Old England for Ever*, 1750."

* This is clearly an error. Bailey's work was published in 1855, and there is evidence to show that the manufacture of pottery in Nottingham was not discontinued until, at the very earliest, the latter end of the last century.

† For much of the information on Nottingham ware we are indebted to G. B. Rothera, Esq., of Nottingham.

U. 3. LARGE MUG, in brown earthenware with glaze of metallic lustre; ornamented with stamped flowers laid on in relief, and incised inscription in cursive characters round the rim, "*Made at Nottingham y^e^ 17th Day of August, A.D.* 1771."

Presented by Edmund Percy, Esq., of Nottingham.

U. 4. TOBACCO JAR and COVER, in form of a bear clasping her cub: brown-glazed earthenware, slightly lustrous; the coat roughened by fragments of potsherd sprinkled over the surface.

A similar jar in the possession of Mr. John Hawkins, of Grantham, is dated 1769.

LOWESBY POTTERY.

[Wall Case XLI.]

A small pottery was established at Lowesby, in Leicestershire, by Sir F. G. Fowke about the year 1835, but has long been discontinued. A red paste was manufactured from the lias clays of the district, and some of the pottery was modelled after Etruscan forms.

U. 5. SMALL GOURD-SHAPED BOTTLE, in red terra cotta, with flowers and insects enamelled in colours and gilt. Unmarked.

Presented by W. Latham, Esq., of Melton Mowbray.

U. 6. FLOWER POT, in red ware, ornamented with impressed bands, and painted with stars and radiated discs in black and white. Impressed mark, "LOWESBY," surmounted by fleur-de-lis.

"YARMOUTH POTTERY," &c.

[Wall Case XLI.]

It is known that about the end of the last century a potter named Absolon had works at a place still known as "The Ovens" at Yarmouth. It appears, however, that no potting was ever done there, but that the business consisted simply in decorating ware manufactured elsewhere, and firing the colours in a gloss-kiln. The mark of "*Absolon yarmθ.*" is found on pieces stamped with an arrow, but it is at present uncertain to what factory the mark of the arrow should be attributed.

V. 1. FIGURE of a female with bird perched on her right hand; white glazed earthenware, coloured; height 11 inches. Mark, an impressed arrow.

V. 2. DESSERT-DISH on foot, with gilt rim and painted iris and other flowers, having their names on the back written in red, partly worn off. Impressed mark, an arrow.

V. 3. DISH, with brown edge, painted with flowers, having name on back in red, partly obliterated. Mark, an impressed arrow.

V. 4. PLATE, with brown edge, painted with the "Round-leaved Cyclamen," having name on back in red. Stamped S.

V. 5. PLATE, in cream-coloured ware, with double edge in brown, painted with "Dog's-tooth Violet," having name written on back in red. Unmarked.

From the Bandinel collection.—Presented by Dr. Page.

This plate, which has been attributed by some authorities to Wedgwood, is very similar to those in a service belonging to Col. Sykes, M.P., some of which are marked "Wigan Pottery."

Lowestoft Porcelain and Pottery.

[Wall Case XLII.]

According to Gillingham's "History of Lowestoft," written in 1790, the manufacture of porcelain was attempted in the year 1756 by Mr. Hewlin Luson, of Gunton Hall, near Lowestoft. Although his experiments were frustrated, a porcelain factory was established at Lowestoft in the following year by Messrs. Walker, Browne, Aldred, and Rickman. A soft paste was first made, but about 1780 the manufacture of a hard body was introduced. It has been considered that much of the so-called Lowestoft china was merely Oriental porcelain decorated at Lowestoft, but Mr. Chaffers has shown that the hard paste was made at the works, and that nothing passed from the factory but what had been manufactured there.*

The period of greatest prosperity of the Lowestoft works was between 1770 and 1800. In the year 1802 the works were abandoned, and the stock sold, but a portion of the factory is still standing.

From certain pieces of delft ware bearing inscriptions and dates as early as 1752, it appears probable that before the manufacture of porcelain was introduced common pottery had been manufactured at Lowestoft, or at least that delft ware had been painted in this locality.

V. 6. Delft Plate, with fluted border painted in white; centre painted with Chinese fishing scene in blue, brown, and yellow. Reverse inscribed in blue under the glaze, "Cornelius Dixon, Norwich, 1760."
Presented by the Rev. S. B. Turner.

V. 7. Plate, with gilt rim edged in brown; border painted with flowers in *sopra bianco;* centre enamelled with coat of arms and crest of *agnus Dei.*

V. 8. Soup-plate, gilt edged; border painted with flowers; centre painted and gilt with armorial bearings.
Presented by Mrs. Percy.

V. 9. Dish, with gilt rim edged in red; border painted with flowers; centre painted and gilt with armorial bearings.

V. 10. Basin, painted inside with border of lake scale-pattern, and outside with flowers and birds in circular medallions.

V. 11. Cup and Saucer, painted in blue and red, with flowers, birds, and insects, touched with gold.

V. 12. Cup and Saucer, with gold border edged in red, painted and gilt with trophies and vine, from which armorial devices are suspended.

V. 13. Coffee-cup, painted and gilt with armorial bearings, and motto, "Le Grand."

V. 14. Dish, with scroll border in blue and red, touched with gold.

V. 15. Quart Mug, with double twisted handle terminating in floriated ornament; painted in brown and black with view of Aberdeen in oval medallion with gilt inscription, "The Commercial Banking Company of Aberdeen;" on each side of medallion a sprig of flowers in brown and gold; round the rim a deep blue border edged in gold; the handles painted blue and touched with gold.

* "Marks and Monograms on Pottery and Porcelain," by W. Chaffers, F.S.A., 3rd ed., 1870, p. 612.

Wrotham Pottery.

[Wall Case XLIV.]

Coarse earthenware was made at Wrotham, in Kent, certainly towards the close and probably as early as the middle of the seventeenth century. A dish in the British Museum is dated "Wrotham, 1699;" while a piece in Mr. C. W. Reynolds' collection, which had long been in the possession of a Kentish family, and was traditionally referred to Wrotham, bears the date 1668.

In connexion with the history of pottery in Kent, it may be mentioned that records are extant showing that as early as 1582 a Dutch potter was settled at Sandwich.

W. 1. Double-handled Posset-pot in coarse red earthenware, with raised ornaments and inscription laid on in yellow slip before glazing; inscribed in rude characters "WROTHAM," with initials "T. E." and date 1703.

Coll. Marryat.

Cadborough Pottery.

[Wall Case XLIV.]

At Cadborough, near Rye, in Sussex, a pottery was established about the beginning of the present century, and the manufacture of a red ware is still carried on to a limited extent by Mr. Mitchell. The coarse red body is coated with a brilliant lead glaze, producing a mottled green or brown surface.

W. 2. Small Vase, six inches high, in red ware, with mottled green glaze.

Presented by Albert Way, Esq., M.A., F.S.A.

W. 3. "Sussex Pig," a vessel in brown glazed earthenware, having the form of a pig with moveable head serving as a drinking cup.

Presented by W. Chaffers, Esq., F.S.A.

The "Sussex pig" is a quaint vessel said to be still used at weddings in that county. The body standing on end forms an ale-jug, while each guest drinks a *hogshead* of beer to the health of the bride.* This brown mottled ware bears some resemblance to Rockingham ware.

Branksea Pottery.

[Wall Case XLIV.]

About fourteen years ago an attempt was made to establish a pottery on Branksea Island, opposite Poole, on the coast of Dorsetshire. This attempt was prompted by the occurrence of clays in the Bagshot beds of Branksea, similar to those at Poole. It is believed, however, that after a few trials the project was abandoned.

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* Chaffers' "Marks and Monograms," 3rd ed., 1870, p. 642.

W. 4. SMALL PITCHER, in brown-glazed earthenware, with sample of the clay of Branksea Island, from which the ware was manufactured.

Presented by Major Waugh, of Branksea.

FULHAM POTTERY.

[Wall Case XXX.]

It has been already mentioned (p. 13) that John Dwight, of Oxford, had discovered the manufacture of an imperfect kind of porcelain, certainly as early as 1671. On the 13th of April of that year letters patent were granted to Dwight for "the mistery of transparent earthenware, com-" monly knowne by the names of porcelaine or China, and Persian ware, " as alsoe the misterie of the stone ware, vulgarly called Cologne ware." In this patent we are told that " at his own proper costs and charges, he " hath invented and sett up at *Fulham*, in our county of Middlesex, " several new manufactories." So important were Dwight's discoveries, that Dr. Plot, in his *History of Oxfordshire*, published in 1677, sums up his account by saying " in short, he has so advanced the *Art Plastick*, " that 'tis dubious whether any man since Prometheus have excelled him, " not excepting the famous Damophilus and Gorgasus of Pliny."

On the death of John Dwight, which must have happened about the year 1737, the pottery which had thus been established at Fulham passed into the hands of his daughter Margaret Dwight, who entered into partnership with Thomas Warland; but some years afterwards these proprietors became insolvent. Subsequently Miss Dwight married a Mr. White, and the works long remained in the possession of their descendants.

The materials which Dwight employed in the Fulham pottery are not specified in either of the two patents which he obtained. Dr. Plot, speaking of the manufacture, says " these arts he employs about materials " of English growth, and not much applyed to other uses ; for instance, " he makes the stone bottles of a clay in appearance like to tobacco-pipe " clay, which will not make tobacco-pipes, although the tobacco-pipe clay " will make bottles."

A fine collection of authenticated pieces of early Fulham ware is in the possession of Mr. C. W. Reynolds.

X. 1. MUG in drab glazed stone-ware, ornamented with leaves rudely painted in deep cobalt blue over outlines scratched in the paste; in front an embossed medallion with crowned head and initials " G. R."

X. 2. SMALL MUG, in similar style to last, with crowned head and " G. R." in raised medallion.

X. 3. JUG or Gorge, in white-glazed earthenware, with raised medallion bearing crowned head and initials " G. R.," surrounded by leaves rudely painted in blue; the neck ribbed in a horizontal band and coloured blue; impressed mark, " W. T. & Co."

X. 4. JUG, in drab stone-ware, ornamented with stamped flowers and incised lines, and with large medallion portrait in front inscribed WILHELMUS III. D.G. MAG. BRIT. FRANC. ET HIB. REX.

X. 5. INKSTAND in brown stoneware, in form of grotesque old woman's head with gaping mouth to admit the pen.

X. 6. SPILL VASE, in white-glazed earthenware ornamented in black transfer-printing with portrait of Queen Caroline, and view of Fulham from the Thames.

X. 7. OINTMENT POT, 2½ inches high, 3½ inches in diameter at rim; coarse paste coated with a stanniferous glaze. Found at Fulham.

Presented by Dr. David S. Price.

X. 8 to X. 10. Three OINTMENT POTS similar to the last piece.

Presented by the late Mr. Weeks.

X. 11. X. 12. PAIR of male and female FIGURES, 16 inches high, coated with opaque white enamel.

(On top shelf, Case XXXVII.)

It is perhaps doubtful whether these two pieces may fairly be appropriated to the Fulham factory.

ISLEWORTH POTTERY.

[Wall Case XXX.]

A small factory was established at Railshead Creek, Isleworth, in 1760, by Joseph Shore, of Worcester. It is said that at first both pottery and porcelain were produced, but on the death of the superintendent Benjamin Quarman, in 1787, the manufacture of porcelain was discontinued. Much of the coarse pottery was known as "Welsh ware." About 1825 the works were removed to Hounslow, but were abandoned about two years after their removal.*

X. 13. SMALL DISH, in form of a valve of a pecten, ornamented with Chinese fishing-scene printed in blue under the glaze.

LAMBETH AND VAUXHALL POTTERY.

[Wall Cases XXXI. and XXXII.]

It is known that about the middle of the seventeenth century certain Dutch potters settled at Lambeth, and introduced the manufacture of pottery and tiles. That such a manufacture was established in London certainly as early as 1668 may be seen from the evidence given before the barons of the Court of Exchequer in a case relating to a parcel of potter's clay, belonging to Edmund Warner, which had been seized by the Custom House officers. This trial took place in 1693, and William Riddal then deposed that "he was Steward and Tenant to the "said *Warner* for above 20 Years, in all which time the said *Warner* "constantly sold to the Potters in *London* considerable quantities of "the same sort of Clay now in dispute, for the making of White and "Painted Earthen-Ware." Evidence on Warner's behalf was also taken from five London potters: "*William Knight, Thomas Harper, Henry de* "*Wilde, John Robins, Moses Johnson*, are all potters in *London*, and "swore that they had all seen the said *Warner's* Clay, which was seized, "that it was really Potter's Clay, and of the same sort which they had "constantly bought of him, *some for above* 25 *years*, others ever since "they were Traders."†

* "Marks and Monograms on Pottery and Porcelain," by W. Chaffers, F.S.A., 3rd ed., 1870, p. 674.

† *As the document* from which these extracts are quoted is of interest in connexion *with the history of British* pottery, it is printed *in extenso* in Appendix B. p. 250.

On the 23rd of April 1671, letters patent were granted to John Ariens Van Hamme, a Dutchman who had settled in this country, for his "art "of makeinge tiles and porcelane, and other earthenwares, after the way "practised in Holland." It is probable that this Van Hamme may have established himself at Lambeth.

From what we know of the productions of the Lambeth potteries, they appear to have been chiefly delft and stone ware. The works flourished until the close of the 18th century, when they were unable to compete with the Staffordshire potteries, and at present only common stone-ware is made.

X. 14. PILL-SLAB; an octagonal plaque of delft ware, perforated for suspension, and painted with the arms of the Apothecaries' Company.

These slabs were formerly used by apothecaries in rolling the materials of pills. This specimen and the next one are on the bottom shelf of Case XXXV.

X. 15. PILL-SLAB; a plaque of delft ware in form of an heraldic escutcheon, or "heart," painted in blue, with arms of the Apothecaries' Company and of the City of London.

X. 16. EARTHENWARE JAR, with four ears perforated for suspension, the upper part glazed green and the lower part unglazed.

Jars of a similar kind were made for holding Narbonne honey.

X. 17. JAR, in delft ware, inscribed in blue with initials "W. K."

DELFT WARE (*British and Foreign*).

[Wall Cases XXXV. to XLIV.; bottom shelves.]

It is said that as early as the year 1310 the manufacture of pottery was successfully carried on at Delft in Holland,—a town which in the seventeenth century acquired extraordinary reputation by this manufacture. The famous Delft ware was made from clay obtained in the neighbourhood of Maestricht, mixed with marl and sand; and was coated with an opaque stanniferous glaze or enamel, frequently presenting a slight greenish or bluish tint.

The evidence already adduced with respect to the Lambeth pottery shows that in the middle of the seventeenth century—a period when the Delft manufacture had attained its greatest prosperity—certain Dutch potters established themselves in this country; and following up the history a few years later, we learn, from the preamble to a patent granted in 1676, that a Dutch potter, encouraged by the British ambassador at the Hague, had settled here with the view of pursuing his "Art of "makeinge tiles and porcelane and other earthen wares *after the way* "*practised in Holland*"* From the success which attended the manufacture of delft ware at Lambeth, the art extended to other localities, and was certainly carried on at Fulham, Liverpool, and Bristol. The want, however, of sufficient means of distinction between the wares made at these several places frequently renders it difficult, and sometimes indeed impossible, to satisfactorily refer pieces of English delft to their respective localities, or even to separate the British from the foreign specimens. The following collection therefore includes both Dutch delft and similar ware of English manufacture.

* Specification of Patents, No. 191, Oct. 27, 1676.

Y. 1. WINE JUG, 7 inches high; coarse body coated with an opaque white stanniferous enamel, with pewter lid stamped with the Tudor rose and crown, and initials H. G.

These wine pots usually have a globular body, with a narrow neck, but no spout, and are furnished with a handle. They may have been manufactured at Lambeth.

Y. 2. WINE JUG, 6½ inches high, in similar ware, inscribed in blue on the front of the body "WHIT, 1647;" handle broken.

Y. 3. WINE JUG, 6½ inches high, in similar ware, inscribed in blue "CLARET, 1662."

Y. 4. CANDLESTICK, 10½ inches high, coated with an opaque white tin enamel, painted in blue with the arms of the Fishmongers' Company, and inscribed "W. W. E., 1648."

This ware so closely resembles the wine pots that it must be referred to the same manufactory, probably Lambeth.

Y. 5. DRUG POT, 7½ inches high, coated with a white opaque enamel less dense than that on the preceding pieces; painted in blue with a double-headed eagle, the crest of the Duke of Marlborough.

Y. 6. SMALL PLATEAU, 5½ inches diameter, painted in blue with figure of a naked infant holding a bird in his right hand, and dated 1555; reverse with blue scroll-work and sacred monogram.

From the style of painting on this piece, it is probably not English.

Y. 7. BARREL-SHAPED MUG (fig. 154), 5½ inches high, painted in blue with birds, insects, and flowers, and inscribed around the rim "WILLIAM AND ELIZABETH BVRGES, 24TH AVGVST, 1631;" also dated under the handle 1632.

The white-glazed surface of this piece has a peculiar granular appearance, unlike that of any of the other pieces of delft ware in the collection, and somewhat resembling that of a salt-glazed surface.

An old English delft mug inscribed around the neck "John Williamson, 1645," is in the museum of the Historic Society of Lancashire and Cheshire. It was formerly in the possession of Mr. W. Everard, of Liverpool, and is attributed by Mr. H. Ecroyd Smith to Liverpool manufacture.

Fig. 154.

Y. 8. PUZZLE VESSEL, with false bottom enclosing a cavity which communicates with three tubular handles; coated with opaque white glaze, coarsely painted in blue in oriental style, and inscribed with initials "C. T. E." and date 1684.

Y. 9. VESSEL, with pair of elaborately twisted handles, spout ornamented with serpent, and three feet in form of birds; coated with white glaze of greenish tint, painted in blue with foreign birds and flowers, and inscribed on the base "H. H. K., 1696."

Y. 10. COVERED VESSEL, with two handles and spout, for tea or some other infusion.

Y. 11. SALT-CELLAR, supported by three winged figures seated at the angles of a triangular base, and each bearing a shell; painted with flowers in blue.

Presented by Sir T. W. Holbourne.

Y. 12. FLOWER-VASE, 12 inches

high; shaped body, with two handles in form of camels' heads, and cover with fifteen necks for holding cut flowers; painted in blue with flowers, and marked on the base.

Presented by Sir T. W. Holbourne.

Y. 13. VASE and COVER, 9½ inches high, with mask handles; coated with a greenish glaze, painted in blue with landscape and figures.

The cover is painted in oriental style, and probably does not belong to this vase.

Y. 14. TANKARD and COVER, 11 inches high, coated with a greenish glaze, painted in blue with landscape, and dated at base of handle 1758; the cover ornamented with portrait of Queen Anne, and inscribed inside "L. C. Pope, 1758."

Y. 15. BOTTLE, flat sided with ring-shaped body; coated with greenish glaze, painted in blue with flowers on one side and landscape on the other, and inscribed around the hoop of the body "James and Ann Tompson, 1784."

A balloon painted in purple and yellow forms a prominent object in the landscape. The earliest balloon ascents were made in France in 1783, and Lunardi's first ascent in this country took place on September 21st, 1784.

Y. 16. BOWL, 6 inches diameter, painted outside with three fish in blue on a mottled purple ground, and inside with four fish in blue on a greenish glaze; rim edged in brown, body cracked.

Presented by Mrs. Smith.

This delft bowl is said to have been for upwards of two hundred years in the possession of the donor's family in Staffordshire.

Y. 17. PUNCH-BOWL, 10 inches in diameter, coated with a greenish glaze, and painted in pale blue on the outside with hunting scenes, and on the inside with portrait surrounded by military trophies, and the following inscription:—

"William, the Princely Youth, with Transport see,
"He chains th' Oppressor, sets th' Oppressed Free,
"Hail Friend of Albion and of Liberty!"

It is believed that the other delft punch-bowls on this shelf may be certainly attributed to Liverpool manufacture, and they are therefore catalogued with the Liverpool pottery at p. 195. The following series of specimens of delft ware commences in Wall Case XXXV., and extends to No. XLIV.

Y. 18. PLATE, 9 inches diameter, greenish glaze, painted in blue with scene of apple-gathering, inscribed "September;" marked in blue with the hatchet.

Y. 19. PLATE, 10 inches diameter, greenish glaze, painted in blue with a scene referring to brewing, and inscribed "October;" marked in blue "W. D. B."

Y. 20. PLATE, 9¾ inches diameter, greenish glaze, painted in blue with scene of killing a pig, inscribed "November;" marked in blue with the hatchet.

Y. 21. PLATE, 9 inches diameter, greenish glaze, painted in blue with profile portrait, inscribed "W. D. V., P. V. O. R.;" rim edged in orange; blue mark on back, the hatchet and letter V.

Y. 22. PLATE, 8½ inches diameter, greenish glaze, painted in blue with simple flowers; rim edged in red.

Y. 23. PLATE, 9 inches diameter, thin body, coated with brilliant glaze, and rudely painted in blue with flowers and conventional ornaments.

Y. 24. PLATE, 8¾ inches diameter, thin body, coated with brilliant glaze, and painted in blue with conventional flowers; marked in blue "F. D. K. V."

harp, dog, and shamrock, with word BELLEEK.

Presented by G. L. Conynham, Esq.

Z. 2. TAZZA, in cream-coloured porcelain, partly glazed, with ribbed body and pair of snake handles; mounted on pedestal ornamented with garlands and festoons of raised flowers pendent from rams' heads; impressed mark in Irish characters.

Z. 3. PAPER WEIGHT in form of a dragon, painted red and green, and mounted on rock-work with shells at base; mark as on No. Z. 1, printed in red, and Irish character stamped.

Z. 4. SPILL-POT, 6 inches high, in form of a spike of Indian corn; cream-coloured porcelain coated with a lustrous glaze; leaves tinted yellow; mark printed in blue.

Z. 5. LARGE SHELL of *Dolium* modelled in porcelain, tinted, and glazed.

Z. 6. SMALL SHELL of *Nacta*, modelled in porcelain and glazed.

Z. 7. TRIPLE BASKET formed of three conventional shells grouped with corals and seaweed; tinted and coated with lustrous glaze; mark printed in blue, and Irish character stamped.

Z. 8. SALT CELLAR in form of a valve of *Tridacna* (clam shell), mounted on group of shells, including *Cerithium*, *Murex*, &c.; cream-coloured porcelain, tinted and glazed; mark printed in blue, and stamped BELLEEK, FERMANAGH.

Z. 9. SALT CELLAR in form of a small clam shell, tinted and glazed; mark printed in blue.

Z. 10. SALT CELLAR in form of a shell of dolium, tinted and glazed; mark printed in blue.

Z. 11. MUFFINEER in form of a shell of murex, supported on group of coral, tinted and glazed.

Z. 12. ARGONAUT SHELL (paper nautilus), mounted on group of coral springing from a base bestrewn with shells and seaweed; modelled in porcelain, tinted and glazed; mark printed in blue.

Z. 13. CREAM JUG, in cream-coloured porcelain, ornamented with embossed diamond pattern, having blue bosses in centres and red bosses at the angles, with gilt leaf borders running round the neck and foot; handle in form of twisted cord, tinted purple; mark printed in blue.

FOREIGN POTTERY AND PORCELAIN

(*Ancient and Modern*).

[Cases on both sides of the lower gallery; Oriental porcelain in Pedestal Case 5.]

Although the main object kept in view in forming the ceramic collection in this Museum has been the illustration of the history and present condition of the manufacture of pottery and porcelain in this country, it has nevertheless happened that a few samples of foreign wares, mostly presentations, have from time to time been introduced into the collection. The foreign department thus formed is, however, necessarily incomplete, and as it is not considered desirable to attempt an extension of the collection in this direction, it is perhaps sufficient in this place to merely indicate the position of the foreign series, without introducing any descriptive notices, which would indeed fall beyond the scope of this catalogue, professedly a catalogue of British pottery and porcelain.

APPENDIX A.

By GEORGE MAW, F.G.S., &c.

CATALOGUE of SPECIMENS illustrating the CLAYS and PLASTIC STRATA of GREAT BRITAIN, collected and described by GEORGE MAW, F.G.S., &c.

[Pedestal Cases Nos. 4, 5 (west side), 52, 53, and 55 (east side), lower compartments.]

Each set of specimens comprises six examples:—

1. The native clay in the unburnt state.
2. The native clay in the kiln-burnt state.
3. A slab of unburnt clay, exactly four inches square, pressed out of refined clay after the coarse particles had been removed by passing it through a fine lawn of wove wire containing 100 wires or 10,000 perforations to the inch.
4. The coarse matter so removed.
5. A burnt slab of native or unrefined clay originally moulded four inches square..
6. A burnt slab of refined clay originally moulded four inches square.

The series of specimens are arranged in geological sequence, commencing with the newer deposits, viz. :—

Nos. 1 to 18. Recent and Post-Tertiary.
Nos. 19 to 28. Miocene.
No. 29. Middle Bagshot
Nos. 30 to 42. Lower Bagshot
Nos. 43 to 45. London Clay
Nos. 46 to 48. Woolwich and Reading series
} Eocene.
Nos. 49 to 51. Cretaceous.
Nos. 52 & 53. Speeton Clay (Cretaceous and Jurassic?).
Nos. 54 to 61. Wealden.
Nos. 62 to 68. Purbeck beds of Dorsetshire.
Nos. 69 to 79. Jurassic and Rhœtic.
Nos. 80 to 84. Triassic (Keuper).
Nos. 85 to 90. Permian.
Nos. 91 to 115. Carboniferous.
Nos. 116 to 118. Devonian.
Nos. 119 to 123. Silurian.

They have been selected with the object of illustrating the characters bearing more especially on their economic applicability to ceramic manufactures.

Plastic strata may be defined as beds of mechanical origin, containing alumina as an essential constituent, which have undergone little or no consolidation, or been subject to metamorphic action.

Although common to various geological formations from the palæozoic to the most recent deposits, a very large proportion of plastic strata applicable to ceramic manufactures occur in the recent and tertiary beds.

Plastic strata diminish in frequency as the older deposits are approached: in the earlier palæozoic formations the beds which were at the time of deposition soft clays and marls occur for the most part as shales and slates, or have undergone further metamorphism into hard porcelanites and other altered rocks unavailable for the potters' use. Indeed the very changes which the potter effects by artificial heat have, as regards the earlier rocks, been anticipated in the laboratory of nature, pressure in combination with heat having altered their original soft and plastic condition, changing them into the hardest rocks.

It must not, however, be supposed that all clays of economic applicability occur in a soft and plastic state, as every gradation exists between hard metamorphic rocks and the softest clays, and many of the most valuable clays occur in a semi-indurated condition, are mined by the process of blasting, and brought to the surface in hard rock-like masses. These, by exposure to atmospheric changes and alternations of wet and drought, frost and thaw, are speedily, by the process known as "*weathering*," disintegrated and reduced to the plastic condition.

The state of mechanical subdivision is of no little importance in the applicability of clays to the various purposes of ceramic manufacture. A reference to the specimens will at once show that every gradation exists between an almost impalpable condition * and a mixture of coarse and fine matter, as in the bulk of the specimens, the coarse residue of which sometimes forms as much as 10 or 20 per cent. of the entire weight.

Bearing in mind that most clay-strata result from the mechanical disintegration of older rocks, it will be easily understood that their state of subdivision has been dependent for the most part on the transporting and sorting agencies of water, carrying away and separating the finer particles held longer in suspension than the coarse matter.

The origin of some of the finer white clays must, however, be attributed to the chemical dissolution of calcareous rocks by the agency of carbonated water, the insoluble silica, alumina, magnesia, &c., associated with carbonate of lime in chalk and limestone in the finest state of subdivision, being left behind as an impalpable residuum. The writer, in a paper on "The sources of the materials composing the white clays of the Lower Tertiaries," published in the "Quarterly Journal of the Geological Society" (vol. xxiii. p. 387). suggested such a derivation from the chalk, of the smooth clays of Bovey Tracey and Newton Abbot (Nos. 20–27), and of similar clays from the Lower Bagshot beds of Wareham (Nos. 30–38), and it seems scarcely open to question that the white clays resting on the carboniferous limestone of North Wales, Derbyshire, and Tipperary (Nos. 12–18) are the remnants of the subaerial dissolution of the limestone (see papers on this subject by the writer at pp. 241 and 299, vol. iv., of The Geological Magazine).

The *chemical composition* of plastic strata varies as much as their mechanical condition. They may be generally described as an association of silicate of alumina, alumina, free silica, and magnesia, with more or less water of combination. Clays and marls scarcely ever occur entirely free from iron, to which their colour is mainly due; it exists in various states of combination, further referred to below. Carbonaceous matter, especially in the tertiary and carboniferous clays, is frequently associated in a fine state of subdivision, and the alkalies are generally present in variable proportions both as silicates and carbonates.

Contraction in burning.—This character is of so much importance in all branches of ceramic manufacture that it may be of interest to notice one or two features that the experiments exhibit.

The amount of contraction in burning, due partly to the loss of water of combination and of the carbonic acid in the carbonates, when present, and to the ignition of any carbonaceous matter contained in the clays, but more especially to the drawing together of the particles in the production of vitreous silicates, is very variable and depends both on the chemical and mechanical composition of the clays. The presence of the alkalies and iron tends to complete vitrification, which is always accompanied by a great amount of contraction, and the production of a glass-like body with a bright conchoidal fracture (as in No. 115). On the other hand, in clays containing much free silica or even silicate of alumina without the accompaniment of the fluxing alkalies, a small amount of contraction takes place and an open porous "body" is the result.

The amount of contraction is not less due to the state of mechanical subdivision of the constituent particles. Clays in a coarse state of subdivision and containing a large proportion of gritty matter, especially of silicious sand, invariably contract less in burning than those of smooth and fine texture, in which the constituents are in an impalpable state of subdivision; this will be at once seen by a comparison of the amount of contraction of the slabs composed of the coarse clay in its natural state with those moulded from the clays from which the coarse particles have been removed; and the larger the proportion of coarse matter in the native clay the greater is the difference between the amount of contraction of the clay in its natural and refined states. The average contraction of the whole of the burnt slabs composed of the native unrefined clay amounts to 6·01 per cent., and of the burnt slabs of refined clay 7·53 per cent. of the original moulded size. This appears due to two causes, firstly, that a mixture of large and small particles is, to begin with, actually more dense than a mass of particles of equal size, † and therefore admits of less contraction in the drawing together of the

* As in examples 20, 21, 22, 23, 24, and 27 from the Bovey Tracey lignite deposit from the Newton Abbot Clay Works, and Nos. 30, 31, 32, 33, 34, 35, 36, 37, and 38 from the Lower Bagshot beds of Wareham, and also Nos. 43 and 123, from which the finest lawn failed to separate any gritty particles.

† *Illustrated* by the fact that a bushel of shot weighs the same as a bushel of bullets, but is *exceeded in weight by* a bushel of mixed shot and bullets, the small shot filling the vacancies *between without displacing* the larger spheres.

particles in vitrification, and, secondly, that the coarser subdivision and less intimate contact seems to hinder the recombination of the constituents as vitreous silicates in the process of burning.

Few clays produce a perfectly vitreous and unabsorbent body. Some of the burnt slabs approach to a glassy texture, whilst others are so highly silicious and coarse in grain as to be held together by very slight cohesion. These are in the burnt state open and spongy, and have undergone but little contraction in the kiln. Such clays, as for example Nos. 108, 109, 110, 111, and 112 from the North Worcestershire coalfield, of which the celebrated Stourbridge fire-bricks are made, are from their refractory character eminently suitable for the manufacture.

The great majority of the examples are intermediate in character between these two extremes, and after the process of burning, form a compact but slightly porous body, subject to a moderate amount of contraction, and are available for general pottery purposes.

The Colouring Matter of Clays.—No native clay is entirely free from the presence of iron which occurs in aluminous earths in various proportions and states of combination. Those most free from iron are the white lower tertiary clays of Devon and Dorset, largely exported from Teignmouth and Poole for the manufacture of white earthenware; for this purpose the absence of iron is a matter of great importance, as it imparts to the ware a yellowish tint, to obviate which it is found necessary to cloak and neutralize the natural cream colour of the burnt clay by the admixture of very small proportions of cobalt blue.

Iron in the white and gray tertiary clays occurs principally in the form of gray carbonate of protoxide, generally in association with finely divided carbonaceous matter, in proportions varying from a mere trace up to 4 or 5 per cent.

Iron, which is so prejudicial in clays employed for white pottery, is an essential colouring matter in those used in the manufacture of terra cotta, encaustic tiles, bricks, and all common pottery.

These may be considered separately as—

(*a*) Gray clays.
(*b*) Yellow clays.
(*c*) Red clays.

(*a*) *Gray clays*, so largely developed as "*clunches*" and fire-clays in the carbonaceous beds of the coal measures, owe their colour, in addition to the presence of carbonaceous matter, to carbonate of protoxide of iron in a fine state of subdivision, and occasionally to the presence of finely divided pyrites or bisulphide of iron (as in Nos. 45, 65, 70, 72, and 103), which also occurs in the London clay, gault, &c.

A pale gray clay, almost white (No. 61), from the base of the Ashdown Sands (Wealden), near Hastings, contains a much larger proportion of iron than its colour would seem to indicate, from its occurring in the form of the comparatively colourless basic sulphate, of which there is 1·68 per cent. present.

(*b*) *Yellow clays* are coloured by hydrous sesquioxide of iron, and generally occur as surface deposits, or where red and gray clays have been subject to weathering, as on exposed surfaces or along lines of jointing. They occasionally occur (*e.g.* No. 30) interstratified with red and gray beds, but appear more generally to be the result of a kind of rusting process. Gray carbonate of iron on exposure to watery infiltrations, accompanied by atmospheric oxidation, becomes converted into the yellow hydrous sesquioxide, and bisulphide of iron, which readily decomposes under similar circumstances, becomes converted partly into sulphate of protoxide and partly into hydrous sesquioxide, to the presence of which the yellow joint surfaces of the London clay and gault are due.

Yellow clays have also been derived from red beds by the red anhydrous sesquioxide and the lower hydrates receiving water of combination.

(*c*) *Red clays and marls, e.g.* those of the keuper, Old Red Beds, permian, coal measures, the middle wealden, the neocomian strata of France, the plastic clay of the London and Paris basins, and other tertiary strata, derive their colour from the presence of anhydrous sesquioxide and the lower hydrous oxides of iron which occur in variable proportions, and are generally associated with small quantities of iron in other states of combination, the colour of which the red oxide obscures. Red hæmatite may be cited as a familiar example of almost pure anhydrous sesquioxide of iron, which, when finely divided, has a strong colouring

power. The red keuper marls receive their colour from about 3 per cent. of this anhydrous sesquioxide, whilst the red clays of the *argile plastique* of Paris, and of the neocomian beds of Beauvais, used in the manufacture of the celebrated Beauvais pottery, contain as much as 20 per cent., equivalent to 15 or 16 per cent. of metallic iron. Nearly all such red clays are variegated by lighter patches from which the oxide of iron has been abstracted; partly by a segregational process, drawing together the iron into ferruginous nodules of hydrous sesquioxide, and also from its dissolution by the acids of organic decomposition derived from imbedded organic remains. Details of the analysis of red and other clays will be found in a paper by the writer "On the disposition of iron in variegated strata," Quarterly Journal of the Geological Society, vol. xxix. p. 351.

The Colouring of Burnt Clays.—The colour of burnt ferruginous clays is entirely due to the amount of iron present, irrespective of its previous state of combination, but subject to certain conditions in the general composition of the clay. The action of the kiln, with some exceptions referred to below, is uniform on nearly every state of combination in which the iron occurs; viz., to reduce it to anhydrous sesquioxide associated as silicates in a more or less intimate state of combination with the other silicates developed in the process of burning.

Yellow clays coloured with hydrous sesquioxide (*e.g.* yellow ochre), as in No. 30, and red clays coloured with anhydrous sesquioxide, and the lower hydrates merely lose their water of combination and become bright brick reds (*e.g.* red ochre and venetian red).

Gray clays containing finely divided pyrites or bisulphide of iron are also converted by the kiln into bright reds, the sulphur being driven off, leaving the terra cotta charged with the red anhydrous sesquioxide.

In clays charged with gray carbonates of iron the following reaction takes place: The carbonic acid (CO_2) is driven off as carbonic oxide (CO), part of its oxygen peroxidising the iron.

Gray clays containing less than 1 or 1½ per cent. of iron change in the kiln to various shades of cream colour and buff, whilst those containing from 2 to 10 or 12 per cent. range in colour from yellowish-fawn to dark reds; from 3 to 4 per cent. of iron produces in the kiln the bright red bodies used in the manufacture of red terra cotta, encaustic tiles, red building bricks, &c. There seems to be no essential difference (with the exception noticed below) in the colouring matter of the clays that burn buff and those that burn red in the kiln, the depth of colour depending merely on the amount of iron present, the buff shades regularly graduating into the deeper shades of red.

The brightest shades of red and buff are, however, produced with but a partial vitrification of the body. At a heat sufficient to insure its complete vitrification a further change of colour takes place. The bright buff shades are changed to neutral grays, and the reds to a slaty-grayish-black, which probably results from a partial reduction of the metallic colouring matter and its more intimate combination with the other vitreous silicates produced at the higher temperature. In clays containing a large proportion of carbonaceous matter the complete peroxidation and consequent colouring power of the iron seems to be arrested. In No. 28, containing 13 per cent of organic matter, the combustion of the carbon in contact with the ferruginous oxides seems wholly or partially to have reduced them to a metallic state, or lower oxide having less colouring power than the sesquioxide, and a remarkable bleaching of the burnt clay has been the result. The presence of the alkaline earths in ferruginous clays, especially of lime and magnesia, has also a singular bleaching power in the kiln, arresting the development of the bright red colour. No. 90, a permian marl containing 6 per cent. of sesquioxide of iron and 35 per cent. of carbonate of lime, burned of a grayish buff instead of the rich red such a proportion of iron would otherwise have produced. From some experiments made by the writer, it has been ascertained that as small a proportion as 5 per cent. of caustic magnesia mixed with a red clay entirely destroys its red colour in the kiln, probably from the production of a pale-coloured double silicate of iron and the alkaline earth. A familiar example of this reaction occurs in the process of manufacturing yellow bricks in the neighbourhood of London, the colour of which is dependent on the admixture of ground chalk with the brick earth, the brick earth by itself burning of a red colour.

CATALOGUE OF THE COLLECTION OF THE CLAYS AND PLASTIC STRATA OF GREAT BRITAIN,

WITH RESULTS OF EXPERIMENTS UPON THEM.

RECENT AND POST-TERTIARY.

No.	Description. Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
1	Alluvial Clay (Mr. Heber Percy), Hodnet, Salop.	9·	8·	0·83	Employed for brickmaking.
2	Potters' Clay (Post-tertiary), Fremington, near Barnstaple, N. Devon, from the works of Mr. Fisbley, Fremington.	12·	10·	Nil.	Extensively used in N. Devon for the manufacture of common pottery fired at a low heat. At a high temperature the ware becomes vesicular, and expands to such an extent that bricks made of it, when overfired, will float in water. For an account of the distribution and geological characters of the deposit, see a paper by the writer at p. 445 of the 20th vol. of Quarterly Journal of Geological Society.
3	Boulder Clay (Post-tertiary), south side of the Great Ormes Head, Carnarvonshire.	11·	10·	9·20	Contains transported blocks from various formations, and is very variable in character.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
4	Red Clay, of Post-tertiary age, Watcombe, near Torquay, from the estate of Mr. Allen, probably derived from the red beds (Trias ?) of South Devon.	10·	8·	2·96	Appears very suitable for the manufacture of red terra-cotta. An analysis made in the Laboratory of the Museum of Practical Geology indicated the following composition :— Silica - - 57·83; Alumina - - 20·55; Sesquioxide of iron 7·75; Oxide of manganese traces; Lime - - 1·68; Magnesia - - 0·97; Potash - - 3·87; Soda - - 0·56; Carbonic acid - 0·90; Phosphoric acid - traces; Organic matter (small quantity) and combined water. 4·39; Hygroscopic water - 2·13; 100·63
5	Blue Silty Clay (Post-tertiary), from a depth of 12 feet under Severn Valley Alluvium, Bridgnorth Gasworks, Shropshire.]	3·	3·	6·68	

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse matter.	Remarks.
		per cent.	per cent.		
6	Alluvial Clay, overlying blue silty clay (No. 5), from gasometer excavation, Bridgnorth Gasworks, Shropshire.	8·	11·	30·17	
7	Red Surface Clay (Post-tertiary) overlying chalk, probably derived from the Woolwich and Reading series, near West Lulworth, Dorsetshire.	18·	15·	10·12	Remarkable for its great contraction in the kiln.
8	White Bed (Post-tertiary), forming the top stratum of the bed of Llyn-Cwm, Bychan, 5 miles S.E. of Harlech, Merionethshire, from Mr. S. J. Hennis.	11·	12·	1·83	
9	Dark Bed (Post-tertiary), forming the bottom stratum of the bed No. 8 of Llyn-Cwm, Bychan, 5 miles S.E. of Harlech, Merionethshire, from Mr. S. J. Hennis.	12·	11·	1·97	
10	Yellow Surface Clay, overlying Mountain Limestone, Glan Alyn Mine, Colomendy, near Mold.	5·	5·	Nil.	

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
11	Red Clay, probably of Post-tertiary age, from cavities in the Carboniferous Limestone, Nant-y-Garmer, near Llandudno.	10·	3·	7·86	
12	White Clay, probably of Post-tertiary age, from cavities in the Carboniferous Limestone, Nant-y-Garmer, near Llandudno.	10·	3·	7·86	Occurs in egg-shaped pockets or cavities throughout the mountain limestone district of N. Wales, Derbyshire, and Staffordshire.
13	White Clay (Post-tertiary), from pocket in Mountain Limestone above Longrake Mine, Halkin Mountain, near Holywell, Flintshire.	4·	5·	2·54	Of similar character to Nos. 11 and 12 from Llandudno. For the geological characters and geographical distributions of the deposits, see papers by the writer in the Geological Magazine for May 1865, and June and July 1867.
14	Gray Clay (Post-tertiary), from pocket in Mountain Limestone above Longrake Mine, Halkin Mountain, near Holywell, Flintshire.	7·5	6·5	0·0013	
15	White Clay (Post-tertiary), from pockets in Mountain Limestone, Pant Du, Llanferris, Denbighshire.	5·	4·	0·65	Of similar character to Nos. 11, 12, 13, and 14, from Llandudno and Halkin Mountain.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
16	Dark Clay (Post-tertiary), from pockets in Mountain Limestone, Pant Du, Llanferris, Denbighshire.	13·	9·	10·53	
17	White Post-tertiary Clay, overlying Mountain Limestone, and resulting from its subaerial dissolution, Colomendy, near Mold.	3·	2·	0·733	Employed for the manufacture of fire-bricks and pottery.
18	White Post-tertiary Clay, overlying Mountain Limestone, and resulting from its subaerial disolution, Colomendy, near Mold.	0·25	0·25	10·9	Employed as fire-clay for furnace work.
			MIOCENE.		
19	Best "*Pipe Clay*," Bovey Tracey, Lignite deposit, from the works of Messrs. Watts, Blake, Bearne, and Cc., Newton Abbot.	13·	12·	Nil.	This and the following clays (Nos. 19 to 28) are employed for pottery purposes, and are remarkable for their plastic property, their great contraction in the kiln, and the almost entire absence of coarse gritty particles. A small per-centage of iron is present and occurs in the condition of carbonate of protoxide. Respecting the probable source of the materials com-

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clays.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		posing these clays and similar plastic clays (Nos. 30 to 42) from the Lower Bagshot beds of Dorsetshire, see a paper by the writer at p. 387 of the 23rd vol. of the "Quarterly Journal of the Geological Society."
20	"*Cutty Clay*," Bovey Tracey, Lignite deposit of Miocene Age, from the Mines of Messrs. Watts, Blake, Bearne, and Co., Newton Abbot.	9·	8·	Nil.	
21	"*Household Clay*," Bovey Tracey, Miocene Lignite deposit, from the Mines of Messrs. Watts, Blake, Bearne, and Co., Newton Abbot.	6·	5·	Nil.	Employed for "whitening" stone-steps and pavements.
22	"*Stoneware Clay*," Bovey Tracey, Miocene Lignite deposit, from the Mines of Messrs. Watts, Blake, Bearne, and Co., Newton Abbot.	7·	·	Nil.	Employed in the manufacture of stoneware.
23	"*Alum-makers' Clay*," Bovey Tracey, Miocene Lignite deposit, from the Mines of Messrs. Watts, Blake, Bearne, and Co., Newton Abbot.	9·	7·	Nil.	Employed for pottery purposes and in the manufacture of alum. Contains about ½ per cent. of protoxide of iron.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
24	"*Drain-pipe Clay*," Bovey Tracey, Miocene Lignite deposit, from the Mines of Messrs. Watts, Blake, Bearne, and Co., Newton Abbot.	3·	4·	Nil.	Used in the manufacture of drain-pipes and other common purposes. From being stained with hydrous sesquioxide of iron is not available for the manufacture of white earthenware.
25	"*Blue Ball Clay*," BoveyTracey, Miocene Lignite deposit, from the Mines of Messrs. Watts, Blake, Bearne, and Co., Newton Abbot.	14·	13·	0·04	An analysis given by Mr. C. D. Blake indicated the following composition :— Silica - - 47·0 Alumina - - 48·0 Oxide of iron - 1·5 Magnesia - - 2·0 Water and waste - 1·5 100·0 (Judging from the pale colour the clay burns in the kiln the amount of oxide of iron appears to be overstated.) This clay is extensively used in the potteries in the manufacture of white earthenware.
26	"*Black Ball Clay*," BoveyTracey, Miocene Lignite deposit, from the Mines of Messrs. Watts, Blake, Bearne, and Co., Newton Abbot.	12·	11·	0·57	Employed for pottery purposes. Colour probably due to carbonaceous matter.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
27	"*Brown Ball Clay*," Bovey Tracey, Miocene Lignite deposit, from the Mines of Messrs. Watts, Blake, Bearne, and Co., Newton Abbot.	11·	11·	Nil.	Employed for pottery purposes. An analysis indicated a composition of $\frac{2}{3}$ silica, $\frac{1}{3}$ alumina, and traces of magnesia, oxide of iron, and carbonaceous matter.
28	Black Carbonaceous Clay (Miocene), Bovey Tracey, Lignite deposit, worked by the Devon and Courtney Clay Company, near Newton Abbot, Devonshire.	10·	10·	3·57	The refined clay contains by an analysis by Dr. Voelcker as much as 11·99 per cent. of carbon, and the coarse matter 33·96 per cent. The clay in its natural state would contain on an average about 13 per cent. of carbon. The extreme whiteness of the burnt examples is due to the reduction of the sesquioxide of iron in the kiln by reaction with the carbonaceous matter.
	EOCENE.				
29	Clay underlying Lignite (Middle Bagshot Beds), railway cutting, Goldsworthy, 1¼ miles W.S.W. of Woking Junction.	5·	3·	5·10	Strata Nos. 6 and 7 in Mr. Prestwich's section of Goldsworthy Hill given at pp. 382–3 of the 3rd vol. of the Quarterly Journal of the Geological Society of London.
30	Red Plastic Clay, Messrs. Pike's Clay Works, near Wareham, Lower Bagshot Beds, Eocene: occurs in irregular alternation with bright yellow clay, the	15·	14·	Nil.	The iron in this clay appears to occur principally as anhydrous sesquioxide with a small quantity of protoxide, the patches of bright yellow with which it is interposed being the result of the red sesquioxide becoming hydrous. The per-centage of iron varies con-

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
	whole interstratified with white and gray clays, sands, and lignites.	per cent.	per cent.		siderably in different examples; one analyzed in the Laboratory of the Museum contained— Total iron { soluble - 2·061 / insoluble - 0·459 } 2·52 per cent. Present as peroxide of iron - 2·944 „ „ protoxide, soluble - 0·010 „ „ protoxide, insoluble - 0·590 „ Another example analyzed by Dr. Voelcker contained iron as sesquioxide 5·28 per cent. This clay is employed to a small extent in the manufacture of encaustic tiles, and is remarkable for its undergoing great contraction in the kiln.
31	White Clay, Messrs. Pike's Clay Works, near Wareham, Lower Bagshot Beds, Eocene.	11·	10·	Nil.	Fires of a light cream colour and is employed for various pottery purposes.
32	Messrs. Pike's "*T*" Clay, Lower Bagshot Beds, Wareham.	11·	11·	Nil.	Employed for pottery purposes. This and the following clays are remarkable for their great contraction in the kiln, and the almost entire absence of coarse gritty particles. The iron, of which a small amount is present, probably occurs as carbonate of protoxide.
33	Messrs. Pike's "*V*" Clay, Lower Bagshot Beds, Wareham.	13·	13·	Nil.	
34	Messrs. Pike's "*Black Clay*," Lower Bagshot Beds, Wareham.	13	13·	Nil.	Coloured with carbonaceous matter, which burns out in the kiln.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
35	Messrs. Pike's "*Blue Clay*," Lower Bagshot Beds, Wareham.	14·	13·	Nil.	Contains about 60 per cent. of silica, 34 per cent. of alumina, 2 per cent. of potash, and small amounts of oxide of iron and water of combination.
36	Messrs. Pike's "*H*" Clay, Lower Bagshot Reds, Wareham.	14·	15·	Nil.	
37	Messrs. Pike's "*P*" Clay, Lower Bagshot Beds, Wareham.	14·	15·	Nil.	
38	Messrs. Pike's "*S*" Clay, Lower Bagshot Beds, Wareham.	7·	7·	Nil.	
39	Yellow Clay, Lower Bagshot Beds (Eocene), Messrs. Pike's Clay Works, near Wareham.	10·	9·	0·166	The state of combination of the iron in an example analyzed in the Laboratory of the Museum of Practical Geology was found to be as follows:— Total iron { soluble - 5·382 / insoluble - 0·361 } 5·743 Present as sesquioxide of iron - 7·69 „ protoxide of iron, a trace. „ oxides of iron (insoluble) weighed as protoxide - 0·465 The bright yellow colour of this clay is due to the sesquioxide of iron being hydrous. It is associated with the blood-red Clay, No. 30, and the yellow colour appears to be a secondary product of the red from the hydration of the anhydrous sesquioxide. The bed

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		belongs to the same series as those from which produce the light clays, Nos. 32 to 38. Both the blood-red and yellow clays are employed in the manufacture of encaustic tiles, and are worth from 7*s.* to 10*s.* per ton, free on board at Poole Harbour.
40	Clay from upper "Plant Bed," Lower Bagshot Beds, Studland Bay, Dorsetshire.	7·	6·	1·25	Of a similar character to the clays from Messrs. Pike's pits at Corfe, Nos. 30 to 42.
41	Mottled Red and Yellow Clays (Eocene), Lower Bagshot Beds, Messrs. Pike's Clay Works, Corfe, near Wareham, Dorset.	6·	5·	1·66	The red colour is due to anhydrous, and the yellow to hydrous sesquioxide of iron.
42	Mottled Sandy Clays (Eocene), Lower Bagshot Beds, Messrs. Pike's Clay Works, Corfe, near Wareham, Dorset. Analyses by Professor Way of "White Pipe Clay" and "Black Clay" from the Lower Bagshot Beds of Branksea Island, Dorsetshire, are given at page 167 of the 3rd edition of the Catalogue of Rock Specimens.	1·	0·	24·8	Contains a quantity of small pea-shaped concretions of sesquioxide of iron.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
43	London Clay, Bawdsey Cliff, near Harwich.	9·	11·	0·03	The iron occurs in the following states of combination :— Iron mostly as protoxide, but with traces of basic sulphate of peroxide and sulphate of protoxide - } 1·68 per cent. Iron - 0·481 Sulphur - 0·550 } iron pyrites 1·031 ,,
44	London Clay (Eocene), two miles west of Bognor, Sussex.	10·	10·	6·33	For states of combination of the iron, see analysis of No. 43.
45	London Clay, Studland Bay, Dorsetshire (Eocene).	3·	3·	1·0	See No. 43, London clay, Bawdsey Cliff, Suffolk.
46	Plastic Clay, Mottled Beds, Woolwich and Reading series, east of Arundel, Eocene.	9·	9·	1·13	For analysis of the states of combination of the iron in the various coloured portions of these beds as developed in the Paris basin, see a paper by the writer in vol. xxiv. of the Quarterly Journal of the Geological Society of London, pp. 372 and 373.
47	Gray Beds, Woolwich and Reading series (Eocene), South of Arundel Station, Sussex.	3·	5·	1·12	
48	Mottled Clay, Woolwich and Reading series, Studland Bay, Dorsetshire, Lower Eocene.	3·	2·	—	See No. 46, and paper in the Quarterly Journal of Geological Society by the writer, vol. xxiv. pp. 372 and 373.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
			CRETACEOUS.		
		per cent.	per cent.		
49	"Fuller's Earth," Sandgate Beds of Lower Green Sand, between Red Hill and Nutfield, Surrey.	11·	13·	13·95	
50	Gault, Cretaceous, cutting of Petworth Railway, near Fettleworth, Sussex.	8·	8·	2·04	
51	Gault (Cretaceous), north side of Swanage Bay, Dorsetshire.	7·	7·	26·25	See also No. 50.
52	Speeton Clay, Cretaceous (cement stone bed), Speeton, near Filey, Yorkshire.	11·	8·	1·33	The bed marked "f" in Mr. Judd's map, and considered to be the equivalent of the upper neocomian (cretaceous).
53	Speeton Clay, Oolitic ("coprolite bed"), Speeton, near Filey, Yorkshire.	11·	6·	9·16	The bed marked "o" in Mr. Judd's map at p. 230 of vol. xxiv. of the Quarterly Journal of the Geological Society of London, and probably the equivalent of the Kimmeridge clay.
			WEALDEN.		
54	Weald Clay, Wealden, resting on Horsham Stone, near Horsham, Sussex.	9·	4·	2·375	

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
55	Weald Clay, Wealden, from a cutting of the London and Brighton Railway, three miles south of Red Hill, Surrey.	9·	4·	3·30	
56	Wealden Clay, east side of Lulworth Cove, Dorsetshire.	6·	4·	2·0	Probably from a lower horizon than the "Weald clay" of Sussex.
57	Red Mottled Wealden Clay, Swanage Bay, Dorsetshire.	9·	7·	20·0	
58	Gray Wealden Clay, Swanage Bay, Dorsetshire.	7·	5·	19·60	
59	Dark Gray Clay, Wealden, Church-Knowle, near Corfe, Dorsetshire.	2·	2·	3·93	
60	Red Clay, Wealden, Church-Knowle, near Corfe, Dorsetshire.	7·	5·	1·55	
61	White Pipe-clay, base of Ashdown Sands, foot of East Cliff, Hastings.	10·	8·	1·19	Contains basic sulphate of iron, 1·68 per cent.; bisulphide of iron, 0·094 per cent. For the chemical characters of this clay see a paper by the writer on the disposition of iron in variegated strata, Quarterly Journal of the Geological Society, vol. xxiv. pp. 378 and 379.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
			PURBECK.		
		per cent.	per cent.		
62	Shaly Clay, interstratified with Upper Purbeck Marble, Woody-Hyde, near Swanage, Dorsetshire.	7·	3·	24·38	
63	Pale Shaly Clay, interstratified with Upper Purbeck Marble, Peverel Point, near Swanage, Dorsetshire.	1·	—	9·1	
64	Black Shaly Clay, separating Corbula beds, Middle Purbeck, Durdleston Bay, Swanage, Dorsetshire.	9·	6·	9·0	
65	Clay above the "Dirt-bed," near base of Middle Purbeck, Durdleston Bay, Swanage, Dorsetshire.	—	—	30·0	
66	Hard Marl under "Dirt-bed," upper part of Lower Purbeck, Durdleston Bay, Swanage, Dorsetshire.	3·	1·	20·5	

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
67	Blue Marl, Lower Purbeck, Durdleston Bay, Swanage, Dorsetshire.	12·	9·	14·87	
68	Gypseous Marls, "Soft Cockle Beds," Lower Purbeck, Durdleston Bay, Swanage, Dorsetshire.	13·	8·	6·85	
	OOLITIC.				
69	Kimmeridge Clay, Oolitic, between Hillmarton and Compton, near Calne, Wilts.	8·	8·	4·77	Employed for making coarse pottery and bricks; contains according to an analysis by Dr. Voelcker— Protoxide of iron - 2·08 per cent. Sesquioxide of iron - 4·32 „ Bisulphide of iron - 1·42 „ Carbonate of lime - 4·28 „ Sulphate of lime - 5·34 „ and crystals of selenite distributed through the mass of the strata.
70	Kimmeridge Clay (Oolite), Chapman's Pool, near Kimmeridge, Dorsetshire.	—	1·	10·14	Contains, according to an analysis by Dr. Voelcker— Protoxide of iron - 1·45 per cent. Sesquioxide of iron - 1·04 „ Bisulphide of iron - 0·86 „ Sulphate of lime - 0·35 „ Carbonate of lime - 34·28 „

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		In comparing this with the example (No. 69) from Calne it will be observed that it contains much more carbonate of lime and less oxide of iron. The pale colour to which it burns in the kiln is due to the presence of the carbonate of lime. The reaction of the alkaline earths with oxide of iron in the production of light-coloured silicates has already been referred to in the introduction.
71	Blue Clay, interstratified with Oolitic Freestone (Calcareous Grit or Coral Rag), Temple Combe, Somersetshire.	7·	6·	12·15	
72	Oxford Clay, Oolitic, Brick Works, canal bank, near Chippenham, Wilts.	4·	5·	2·18	Contains, according to an analysis by Dr. Voelcker— Protoxide of iron - 1·12 per cent. Sesquioxide of iron - 3·25 „ Bisulphide of iron - 1·10 „ Sulphate of lime - 1·37 „ and crystals of selenite distributed through the mass of the strata.
73	Oxford Clay (Oolitic), Scarborough.	—	—	4·5	(See analysis given of Oxford clay, No. 54.)
74	Blue Clay under White Limestone of Great Oolite, Dallington, near Northampton.	5·	4·	0·57	

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
75	Shaly Clay Bed within Great Oolite, near Dallington, Northampton.	1·	2·	2·26	
76	Clay in "Upper Shale and Sandstone" (Oolite), near Scarborough.	5·	5·	10·	
	LIAS.				
77	Top of Upper Lias, Kingsthorpe Brick Pit, Northampton.	9·	6·	0·85	
78	Blue Clay, interstratified with Lias Limestone (Lima Beds, Lower Lias), Messrs. Greaves and Kershaw's Quarry, Harbury, near Warwick.	7·	6·	12·58	
	RHŒTIC.				
79	Rhœtic Beds, "Paper Shales," Audlem, Cheshire.	3·	1·	1·85	

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
			TRIAS.		
		per cent.	per cent.		
80	Red portion of Keuper Marls, Worcester Railway Station.	8·	6·	51·76	Occasionally employed for brickmaking. The following are the compositions of Nos. 80 and 81 as indicated by analyses by Dr. Voelcker :—
81	Gray portion of Keuper Marls, Worcester Railway Station.	11·	1·	58·95	

	No. 80.	No. 81.
Water of combination	4·45	3·71
Protoxide of iron	1·60	1·77
Sesquioxide of iron	2·41	0·80
Bisulphide of iron	0·059	0·029
Alumina	11·14	12·77
Lime	4·85	3·71
Magnesia	3·06	2·17
Potash	0·69	0·71
Soda	Traces	0·02
Sulphuric acid	0·09	0·08
Carbonic acid and loss	3·311	4·741
Alumina	9·39*	11·72†
Silica	53·62*	53·40†
Oxides of iron	0·78*	0·99†
Lime	0·64*	0·61†
Magnesia	1·69*	1·11†
Alkalies and loss	2·22*	1·66†
	100·00	100·00

* Insoluble in hydrochloric acid, 68·34.
† Insoluble in hydrochloric acid, 69·49.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
82	Red Keuper Marl, Brick Works, Hartlebury Railway Station, Worcestershire.	12·	11·	6·17	Employed for making bricks and draining-pipes. See analysis of Keuper Marls, Nos. 80 and 81, from Worcester Station.
83	Gray band in Keuper Marls, Brick Works, Hartlebury, Railway Station, Worcestershire.	7·	7·	12·13	
84	Saliferous Keuper Marls (Trias) over Rock Salt, Hayes' Pit, Marston, near Northwich, Cheshire.	5·	4·	5·56	
	PERMIAN				
85	Red Marl, probably of Permian (or Carboniferous) age, penetrated in sinking the Kemberton Coal Pits near Madeley, Shropshire, occurring at a depth of 70 feet.	4·5	3·0	9·97	
86	Permian Red Clay, Bulwell, near Nottingham.	14·	11·	5·58	

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
87	Red portion of variegated Permian Marl, near Linley Station, Severn Valley Railway.	per cent. 13·	per cent. 9·	1·45	See plate xii., fig. 16, vol. xxix. of Quarterly Journal of Geological Society. Analysis by Dr. Voelcker:— Water of combination - - 2·79 Sesquioxide of iron - - - 3·23 Protoxide of iron - - - 1·35 Bisulphide of iron - - 0·02 Carbonate of lime - - 4·15 Sulphate of lime - - - 0·17 Alumina - - - - 3·95 Magnesia - - - - 2·17 Alkalies and loss - - - 1·22 Matter, exclusive of the iron, insoluble in hydrochloric acid. 80·95 100·00 No. 90 is merely an altered condition of No. 87 from the infiltration of carbonate of lime from the overlying calcareous band. Although containing more oxide of iron, it burns of a much lighter colour. The reaction of the alkaline earths with clays containing oxide of iron in the kiln in producing light-coloured combinations has already been noticed in the introduction.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinking of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
88	Red Gypseous Marl (Permian), over Magnesian Limestone, between Whitehaven and St. Bees Head, Cumberland.	5·	1·	3·68	
89	Red clay, Permian, Coalport Station, Severn Valley Railway.	10·	3·	2·07	
90	Ochreous portion of Variegated Permian Marl from under Calcareous band, near Linley Station, Severn Valley Railway.	3·	1·	32·50	See plate 12, fig. 16, vol. xxiv. of Quarterly Journal of Geological Society, representing the section. Analysis by Dr. Voelcker :— Water of combination - - 1·38 Sesquioxide of iron - - - 6·482 Protoxide of iron - - - 0·309 Sulphur - - - - 0·039 Carbonate of lime - - - 35·58 Magnesia - - - - 0·91 Alkalies and loss - - - 0·35 Alumina - - - - 2·44 Matter, exclusive of the iron, insoluble in hydrochloric acid. 52·51 100·00

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
			CARBONIFEROUS.		
		per cent.	per cent.		
91	Red Clay (Upper Shropshire Coal-measures) over fresh-water Limestone near Linley, Shropshire.	11·	8·	1·32	
92	Red Marl, Shropshire Coal-measures, occurring, as a bed about 5 feet thick from 20 to 30 yards above the "*Sulphur Coal*," Broseley Green.	14·	2·	5·74	Employed extensively in the manufacture of encaustic tiles in association with more refractory clays. Burns of a dull red colour, contains a large proportion of iron, principally as a combination of hydrous and anhydrous sesquioxide, occasionally blotched and seamed with dull buff patches which contain a smaller proportion of iron than the general red matrix. An example of the red portion examined by Dr. Voelcker was found to contain 7·54 per cent. of sesquioxide of iron. Another example analyzed by Messrs. Johnson and Sons contained as much as 8·64 per cent. of iron, present principally as sesquioxide with about half per cent. of protoxide.
93	Gray buff patches and seams in No. 92.	10·	6·	1·10	Of the dull buff patches the following are analyses, viz. by *a.* Messrs. Johnson and Sons:— Protoxide of iron - 0·90 Sesquioxide - 4·20 } Metallic iron 4·01 Silicate - - 0·54

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		*b.* Museum of Practical Geology, another example:— Total iron - { Soluble 1·73 / Insoluble 0·68 } Metallic iron 2·41; Present as sesquioxide of iron - - 1·81; Protoxide of iron, soluble - - - 0·60; Protoxide of iron, insoluble - - - 0·88
94	"*Brick Clay*," Shropshire Coal-measures, Broseley, occurs as a stratum from 8 to 12 feet thick, overlying the tile clays Nos. 95 and 96.	0·	1·	21·35	Mined as a hard rocky mass and obtained from shafts by blasting. On exposure to the weather it is readily reduced to a plastic condition, and is extensively used in the manufacture of the celebrated brown Broseley bricks, which, though inferior in colour, are much more durable than ordinary red bricks. From the small amount of contraction of the clay in the kiln, the bricks retain an even form and uniform size in the burning.
95	Gray Clay, occurring as patches and seams in the Red Clay No. 96, Shropshire Coal-measures, Calcotts, near Broseley.	1·5	1·	7·80	
96	Red Clay, occurring as a stratum 7 or 8 feet thick, at about the middle of the Shropshire Coal-measures, Calcotts, near Broseley.	8·	2·	3·63	Occurs as a hard rocky mass, and is obtained from shafts by blasting. On exposure to the weather it is readily reduced to a plastic condition, and is extensively used in the manufacture of encaustic tiles, roofing tiles, and various articles of architectural pottery. Its composition was determined by Mr. D. Forbes as follows, after the coarse particles (3·63 per cent.)

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		had been removed by passing through a fine lawn sieve:— Silica { combined - 29·71, free - - 34·35 } 64·06; Titanic acid - - - 0·62; Alumina - - - - 20·60; Sesquioxide of iron - - 6·84; Protoxide of iron - - - 0·32; Protoxide of manganese - - 0·09; Lime - - - - 0·12; Magnesia - - - - 0·04; Potash - - - - 0·91; Soda - - - - 0·44; Water, with traces of organic matter 5·85; 99·89
97	"*Pennystone Mount*," matrix of "Pennystone" ironstone, Shropshire Coal-measures, Benthall, Broseley. Stratum usually about 6 feet thick. Concretionary nodules of carbonate of iron prevalent in the upper part.	6·	5·	0·35	Dark gray and of a rich ochreous brown after burning. An example analyzed by Dr. Voelcker contained 3·75 per cent. of protoxide of iron as carbonate. Used in the manufacture of encaustic tiles.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
98	Fireclay (Carboniferous), between the Pennystone measure and "Vigors coal," Shropshire Coal-measures, near Broseley.	2·	1·	8·65	
99	Two-foot Coal Fireclay, Shropshire Lower Coal-measures, Benthall, near Broseley; occurring under the coal.	6·	5·	3·75	Colour dark gray, due to the presence of diffused carbonaceous matter. Burns of a pale buff or cream colour. Is employed in the manufacture of fire-bricks, common "yellow ware" pottery, and encaustic tiles. The iron, present in small quantities, occurs principally as carbonate of protoxide.
100	Ganie-coal Fireclay, Shropshire Lower Coal-measures, Benthall, near Broseley. The underclay usually about 2 feet thick, with occasional small concretions of carbonate of iron in nodules.	3·	2·	0·77	Colour gray, partly due to the presence of carbonaceous matter. Burns of a pale buff or cream colour; is one of the most refractory clays of the Shropshire coal-measures, and employed in the manufacture of bricks and encaustic tiles; from an analysis by Dr. Voelcker, contained 1·48 per cent. of protoxide of iron, as carbonate.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
101	Red Clay, Wyre Forest Coal-field. From cutting in the Bewdley and Tenbury Railway, Worcestershire.	per cent. 17·	per cent. 10·	3·48	Remarkable for its great contraction in burning, which, with the exception of No. 7, exceeds that of any other clay or marl included in the series. Occasionally blotched with greenish buff. The following is an analysis by Dr. Voelcker of the red and greenish-buff part of a similar red bed of the same coalfield, exposed in a cutting of the Severn Valley Railway, near Arley Station:—

Red portion.

(Soluble): Water of combination	6·32
Sesquioxide of iron	12·21
Protoxide of iron	0·40
Bisulphide of iron	0·11
Alumina	17·57
Sulphate of lime	0·07
Lime in a state of silicate	0·71
Magnesia	2·22
Potash and soda	0·56
Insoluble silicates, 60·29.	
Silica	50·23
Sesquioxide of iron	1·19
Alumina	6·33
Lime	0·71
Magnesia	0·37
Alkalies and loss (insoluble)	1·46
	100·46

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		Analysis of gray blotches by Dr. Voelcker:— (Soluble): Water of combination - 4·49 Sesquioxide of iron - - 3·44 Protoxide of iron - - - 0·61 Bisulphide of iron - - 0·022 Alumina - - - 5·33 Sulphate of lime - - - 0·15 Lime in a state of silicate - - 0·71 Magnesia - - - 0·73 Potash and soda - - - 0·24 Insoluble silicates, 84·35. Silica - - - - 65·30 Sesquioxide of iron - - - 1·59 Alumina - - - - 14·33 Lime - - - 0·52 Magnesia - - - - 0·34 Alkalies and loss - - - 2·27 100·07
102	Gray Mottled Clay, Wyre Forest Coalfield, Worcestershire.	10·	7·	5·26	
103	Hard Gray Clay, Wyre Forest Coalfield, Worcestershire.	6·	5·	0·65.	Burns red in the kiln. The iron appears to occur principally as carbonate with a small quantity of bisulphide, which peroxidize in burning.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
104	Fireclay, No. 1, Bewdley Forest Coal-measures. From the works of Mr. Mobberley, Wyre Forest, Bewdley, Worcestershire.	2·	3·	4·13	Employed as a fireclay in the Worcester Porcelain Works, but contains more oxide of iron and is less refractory than the Stourbridge clay.
105	Fireclay, No. 2, Bewdley Forest Coal-measures. From the works of Mr. Mobberley, Wyre Forest, Bewdley, Worcestershire.	8·	4·	7·79	
106	Fireclay, No. 3, Bewdley Forest Coal-measures. From the works of Mr. Mobberley, Wyre Forest, Bewdley, Worcestershire.	2·	1·	9·65	
107	Red Brick Clay, Worcestershire Coal-measures, Messrs. Fisher Brothers, The Hayes, Stourbridge.	4·	3·	7·50	Employed in brickmaking.
108	Stourbridge Fireclay, Worcestershire Coal-measures, No. 1, of Messrs. Fisher Brothers, The Hayes, Stourbridge.	2·	1·	4·52	The material composing the celebrated refractory "Stourbridge fire-bricks," remarkable for the small amount of contraction in the kiln.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
109	Stourbridge Fireclay, Worcestershire Coal-measures, No. 2, of Messrs. Fisher Brothers, The Hayes, Stourbridge.	2·	1·	0·45	Another variety of the same clay.
110	"Seconds" Fireclay from the Earl of Dudley's Coal Pits, near Dudley, Worcestershire.	2·	1·	7·33	Resembling the "Stourbridge" fireclay.
111	"Best" Fireclay from the Earl of Dudley's Coal Pits, near Dudley, Worcestershire.	3·	2·	13·05	Resembling the "Stourbridge" fireclay.
112	"Offal" Fireclay from the Earl of Dudley's Coal Pits, near Dudley, Worcestershire.	3·	1·	10·33	Resembling the "Stourbridge" fireclay.
113	Fireclay (Carboniferous), Coal-measures from the neighbourhood of Maryport, Cumberland.	5·	4·	49·52	
114	Red Clay (Carboniferous), interstratified with Carboniferous Limestone, Trevor, near Llangollen, Denbighshire.	4·	3·	2·83	

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
115	Carboniferous Shale interstratified with Mountain Limestone, Glan Alyn Mine, Colomendy, near Mold.	12·	3·	11·3	Produces a close vitreous body in burning.
	DEVONIAN.				
116	Red Marl, Old Red Sandstone, railway cutting, Ledbury, Herefordshire.	8·	5·	0·65	Colour due to the presence of about 7 per cent. of iron, occurring principally as anhydrous and hydrous sesquioxide and a small quantity of protoxide.
117	Variegated Old Red Sandstone Marl, green blotches on a red ground, railway cutting, Ledbury, Herefordshire.	7·	6·	0·40	Contains somewhat less iron than the dull red marl, present almost wholly as hydrous sesquioxide.
118	Old Red Sandstone Marls, between Linley and Bridgnorth, Shropshire.	8·	7·	1·04	The red portions of this marl contain 9·0 per cent. of sesquioxide of iron and 0·9 per cent. of protoxide; the buff blotches 8·60 per cent. of sesquioxide and 0·54 per cent. of protoxide. The sesquioxide in the red marls appears to be anhydrous or a low hydrate, and that in the buff portions in the hydrous condition.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
			SILURIAN.		
		per cent.	per cent.		
119	Dun-coloured Marl interstratified with Aymestry Limestone (Upper Silurian), The Dunge, near Broseley, Shropshire.	8·	7·	1·04	
120	Wenlock Shale, Upper Silurian, Lime Works between Harley and Wenlock Edge (about the middle of the Wenlock Shale).	6·	6·	2·22	Contains, according to an analysis by Messrs. Johnson and Sons:— Protoxide of iron - - - 1·80 Sesquioxide of iron - - - 7·00 Insoluble oxides of iron - - 0·35 Carbonate of lime - - - 7·50 besides nodules of segregated carbonate of lime.
121	Purple Bed (Upper Silurian), base of Wenlock Shale, near Little Stretton, Salop.	12·	6·	3·53	This bed contains:— Protoxide of iron - - - 0·72 Sesquioxide - - - 7·70 Insoluble oxides of iron, probably silicates. 0·75 Carbonate of lime - - - 7·5 See Quarterly Journal of Geological Society, vol. xxiv. p. 382, and fig. 51, p. 383.

Clays and Plastic Strata of Great Britain, &c.—*continued.*

No.	Description, Locality, &c.	Shrinkage of Refined Clay.	Shrinkage of Coarse Clay.	Per-centage of Coarse Matter.	Remarks.
		per cent.	per cent.		
122	White Saponaceous bed (Upper Silurian), middle of Wenlock Shale, between Horderley and Plowden, Shropshire.	12·	7·	5·01	The composition, according to an analysis by Mr. Forbes, is as follows :— Water - - - 13·88 Carbonic acid - - 4·88 } 11·10 carbonate Lime - - - 6·22 } of lime. Silica - - - 45·48 Alumina - - 23·52 Protoxide of iron - 1·76 Protoxide of manganese - 0·07 Magnesia - - - 1·44 Potash - - - 2·15 Soda - - - 0·54 The appearance of this substance closely resembles some forms of steatite, and many minerals which from their unctuous texture are considered to be highly magnesian.
123	Dark bed near the base of Wenlock Shale, resting on Pentamerus Limestone, near Harley, Salop.	10·	9·	14·57	

APPENDIX B.

A Brief Account of the Evidence given on behalf of Edmund Warner, *at a* Tryal *had at the Bar the 24th of* November 1693, *before the Four Barons of the* Exchequer, *relating to a Parcel of* Potters Clay, *seized by the* Custom-House *Officers, under the pretence of it's being* Fullers Earth.

William Riddal swore that he was Steward and Tenant to the said *Warner* for above 20 Years, in all which time the said *Warner* constantly sold to the Potters in *London* considerable quantities of the same sort of clay now in dispute, for the making of White and Painted Earthen-Ware: That he never knew or heard that the least Parcel of it was ever sold as Fullers-Earth, or put to any other Use than making Earthen-Ware, excepting some small quantities yearly in the Neighbourhood for daubing of Houses, which may be alledged as a good Argument that the said Clay is not of the nature of Fullers-Earth; for, whereas this makes the best Clay Wall in *England*, if it were of the nature of Fullers-Earth, upon the first wet Weather it would all fall to the Ground: He likewise farther deposed, That the first time the said *Warner* shipt the said Clay for *Holland*, it was seized by the *Custom-house* Officers as Fullers Earth; but upon Tryal of it, they were convinced of their Error, and cleared the same.

William Knight, Thomas Harper, Henry de Wilde, John Robins, Moses Johnson, are all Potters in *London*, and swore that they had all seen the said *Warner's* Clay, which was seized, that it was really Potter's Clay, and of the same sort which they had constantly bought of him, some for above 25 Years, others ever since they were Traders, that it is of a quite different nature from Fullers Earth; for the said *Warner's* Clay tho' never so often dissolved in Water, may be brought into a Body again, and will work, like Wax, into any shape, whereas Fullers Earth being once dissolved is never to be got into any Body, but when it is dry crumbles like Sand, and all the art of Man can never make a Pot of it.

Hen. de Wilde, one of the said Potters farther deposed, That about five Years since he shipt some of the said *Warner's* Clay for *Pensilvania*, where his Son had set up a Pot-House, that the Custom-House Officers did then likewise seize it as Fullers Earth, but upon Trial of it found they were mistaken, and cleared the same.

Benjamin Furly, Merchant in *Rotterdam*, to whom the said *Warner* consigned his Clay, *John Sonman*, Servant to the said *Furly*, were, by virtue of a Commission from the Court of *Exchequer*, examined upon Oath, (by Commissioners appointed for that purpose) to several Interrogatories, and their Depositions being read in Court, did plainly prove that all the said *Warner's* Clay which was sent for *Holland* was really sold to Potters for making of Earthen-Ware, That they never heard, nor do believe that any part of it was ever used for the Fulling Trade, or is any way proper for it; that they sold the said *Warner's* Clay from 25 to 30 Guilders a Last, when they could buy Fullers-Earth at 7 Guilders a Last.

Adrian Van Arde, sworn Measurer of all the Earth and Clay imported to *Rotterdam*, was examined by vertue of the said Commission, and Deposed, That for many Years which he had been in that Office, he never knew or heard of any *English* Fullers-Earth imported into *Holland*, that they were so plentifully supplied with that sort of Earth from *Flanders*; that it is commonly bought and sold at Seven Guilders a Last, and had an Hundred Last by him to sell at the same Rate.

Ten or Twelve Potters in *Holland* were likewise examined by virtue of the said Commission, and deposed severally, That they had bought considerable quantities of the said *Warner's* clay of Mr. *Benj. Furly*, and paid for the same from 25 to 30 Guilders

a Last; that they used the same in making Earthen-Ware, but do not believe it any way useful for the Fulling Trade, nor never heard that any of it was ever sold for that use.

Colonel *Holt*, a Member of Parliament, swore, That he (being very lately in *Holland*) made the strictest inquiries into the Truth of this Business, that he could, First amongst the Potters, who all declared to the same Effect, as in their Depositions before mentioned, that he likewise took some of the said *Warner's* Clay, and got a Fuller to try it, whether it were any way useful for their Trade, who answered it was not? nor could he use it if he might have it for Nothing; after which the Colonel ask'd him, From whence they were supplied with Fullers-Earth, and at what Rates? The Fullers answered, generally from *Flanders* at 6½, and 7 Guilders *per* Last; and sometimes from *Rosendale*, in the *States* Dominions, at 10 Guilders *per* Last; that being much dryer, and wasted less by lying; all which the Colonel (being unwilling to believe upon the Fuller's bare word) caused to be drawn up in the Form of an Affidavit, and the Fuller before a Magistrate, swore to the Truth of it, which Affidavit the Colonel hath to produce.

Mr. *Edward Paget*, a Divine, swore, That he being in *Holland* at the same time, made the like Enquiry amongst the Fullers at *Layden*, the chief cloathing Town in *Holland*, who all gave him the same Information, that the Fuller at *Rotterdam* had done the Colonel above; and for his better satisfaction, Three of the Chiefest went with him before a Magistrate, and swore to the Truth of what they Affirmed; after which he went to *Delfe* amongst the Potters, who all affirmed the same thing, that the Ten or Twelve had sworn in their aforementioned Depositions, the Truth of which they attested by a Certificate, under the Hands of above Twenty, which Affidavits, and Certificate, the said *Paget* hath to produce.

Rich. Cutler, Matthew Hanson, Ship-brokers, swore, They had hired many Ships for the said *Warner*, to load Clay for *Rotterdam*; and the general Price of the Fraight, and Primage paid for the same, was 15 Guilders, 8 Stivers *per* Last; and sometimes 17 Guilders, 12 Stivers *per* Last.

Will. Read, Tho. Wood, John Saliby, Mariners, swore, They had the same Prices above mentioned, for several Fraights which they carried, and saw delivered to the Potters in *Holland*.

Hump. Bellomy, Richard Hopkins, Timothy Fowler, —— Shepherd, Worcester, are all Buyers, and Sellers of Fullers-Earth, and swore they could well judge of the same, having dealt therein from Ten to above Twenty five Years, that they all took Samples of the said *Warner's* Clay, out of the King's Celler, and tryed all the Experiments to judge of it, that they were capable of; and possitively affirmed that it was no Fullers-Earth; neither could they find anything of the Nature of Fullers-Earth in it, that for their Use they would not give a Shilling for 100 Last, for they should never be able to sell it.

Alderman *Bearcraft, Tho. Cooksey, John Wynn, Rowl. Hancock, Gloucestershire; Rich. Osborne, Tho. Woorrel, John Chilton, Sam. Beadle, Essex; Simon Meazy, John Lawson, John Backer, John Peartree, Suffolk; John Clarke*, Senior, *John Clarke*, Junior, *Will. Baines, Tho. Baines, Dan. Baines, John Smith, John Carter, Dan. Wenden, Sam. Wrinch*, London; *Dan. Barrs, John St. Berry*, are all Clothiers, Fullers, and Cloth-Workers; being the most eminent in their several Places; as well for Honesty, as great Traders, and good Estates; they all swore they had made the most impartial Experiments they could of the said *Warner's* Clay, now in dispute, being the same taken out of the King's Celler, that they tried it upon several sorts of Goods, as several sorts of *Cloth, Bays, Cloth-Serges*, and *Perpetuanæs*, and every one possitively affirmed that it was no Fuller's-Earth, but on the contrary was an absolute Enemy to the Woollen Manufacture; for instead of scouring, it fix'd the Grease in the Grownd of all the Goods, that were done with it, and instead of makeing them White, it absolutely stained them Yellow, all which was apparent to the most common Eye, in all the above said several sorts of Goods, produced in Court: They likewise declared upon Oath, that they were all Strangers to the said *Warner*; and that it was as prejudicial to their interest, to have Fullers-Earth Transported, as any men's, and therefore could have no Inducement to favour the said *Warner*, beyond the Merits of his cause, to the Violation of their Consciences.

This is so just a Recital of the Evidence given on behalf of the said Warner, that he challenges the greatest of his Enemies to detect him of the least Falsehood therein; and if his Adversaries had been as fair in representing theirs, there would have been no need of this; for whereas in their printed Papers they make their Witnesses to affirm the said

Warner's *clay was tried in all Experiments, without any mixture, there was not above One or Two, but upon cross Examination at the Tryal, owned they used either Segg and Hogs dung, or Soap and Gauls with it, which would have scowered any Cloath better without the said Clay than with it.*

It may not be amiss likewise to observe that for a whole Year in which the Custom-House *Officers have been so very diligent in spreading the Fame of the said* Warner's *Clay to be the best* Fullers-Earth *in* England, *he hath not been able to sell the least quantity of it as such, tho' he has proffered it to all Men for a very little more than one Third of what Fullers-Earth is generally sold for.*

ADDENDA.

THE following examples of modern Majolica ware, manufactured and presented by Messrs. Maw & Co., of the Benthall Works, near Broseley, in Shropshire, have recently been added to the collection, and are placed on the upper shelves of Wall-Cases XXXIX. to XLIV., where they are contiguous with the series of specimens illustrative of the modern productions of the Staffordshire potteries. The reference numbers on the following pieces are continued from those on the samples of Salopian ware described on p. 184.

O. 52. VASE, 12 inches high; flask-shaped body, ornamented in Chinese style with two conventional lizards in relief; coated with deep yellow glaze; impressed mark, "Maw & Co., No. 1."

O. 53. Similar VASE, coated with mottled blue glaze.

O. 54. VASE, 7½ inches high; oviform body, with two handles; coated with turquoise-blue glaze; stamped "No. 12."

O. 55. Similar VASE or amphora, with canary-yellow glaze.

O. 56. Similar VASE, with mottled green glaze.

O. 57. Similar VASE, with mottled purple glaze.

O. 58. Similar VASE, with mottled purple and green glaze, somewhat resembling that on the so-called tortoise-shell ware.

O. 59. VASE, 6½ inches high, with two handles in form of griffins modelled in oriental style; coated with variegated or mottled blue glaze; impressed mark, "Maw & Co., No. 18."

O. 60. Similar VASE or amphora, with mottled red glaze.

O. 61. Similar VASE, with mottled brown and green glaze, resembling that of tortoise-shell ware.

O. 62. VASE, 8¼ inches high; slender conical body, with two lateral bosses in form of lion-masks; coated with turquoise-blue glaze; stamped "No. 11."

O. 63. Similar VASE, with variegated dark and light blue glaze.

O. 64. Similar VASE, with Indian-red glaze.

O. 65. VASE, 8¼ inches high, coated with white glaze, and ornamented with impressed design, which appears of a darker tint than the surrounding ground, in consequence of the greater thickness of glaze in the incised design; stamped "No. 14."

O. 66. Similar VASE, coated with a brilliant green glaze.

O. 67. SUCRIER and COVER, 4¾ inches high, coated with blue glaze and ornamented with embossed ornament, the raised portions appearing lighter than the surrounding ground; impressed mark, "Maw & Co., No. 9."

O. 68. PATERA, 8 inches in diameter, embossed in centre with a classic female profile, surrounded by a circular wreath, and border ornamented with radial fluting and floral design; the whole surface coated with blue glaze; impressed mark, "Maw & Co."

O. 69. Similar PATERA in colours; yellow portrait on lilac ground, with wreath of green laurel leaves and yellow berries; green border, with lilac edging.

O. 70. MAJOLICA JARDINIÈRE, 12 inches high, 24 inches long, and 12 inches wide; ornamented in high relief and coated with coloured glazes. In front and at back a female bust supporting the cornice, with outstretched arms bearing olive branches; at each side a male mask; at the corners four rams' heads with pendent wreaths of oak-leaves; the four feet formed of scroll-work springing from the base.

O. 71. ARCHITECTURAL COLUMN, 24 inches high; ornamented with floral border spirally entwined around the shaft, and with four male and female masks decorating the capital; coated with white, yellow, and lilac glazes.

O. 72. COLUMN, 24 inches high, with slender ornamental shaft, coated with white and yellow glazes.

O. 73. CIRCULAR MEDALLION, 10 inches in diameter, with cinquefoil ornament in centre surrounded by radial fluting; coated with brilliant green glaze; stamped "No. 18."

O. 74. Similar MEDALLION, coated with Indian-red glaze.

O. 75. Similar MEDALLION, in colours; green, yellow, and white.

O. 76. CIRCULAR MEDALLION, 10 inches in diameter, ornamented in bold relief with male mask in white on yellow ground.

O. 77. Similar MEDALLION, with male mask in white on green ground, with yellow border; stamped "No. 19."

O. 78. Similar MEDALLION, with female mask in white on green *ground, with yellow* border.

O. 79. FRIEZE, 3 inches wide, with running pattern of entwined leaves in white on green ground, with yellow border; stamped "No. 22."

O. 80. Similar FRIEZE, with green ornament on yellow ground, with white border.

O. 81. to O. 84. Portions of a FRIEZE, 3 inches wide, with running border of leaves and berries, each section differently coloured.

O. 85. PANEL, 8½ inches wide, ornamented in bold relief with vases of flowers and a dolphin in white, touched with yellow, on green ground; stamped "No. 21."

O. 86. RECTANGULAR PANEL, 12 inches by 6 inches; ornamented in relief with vase of flowers and festoons and ribbons; coated with blue glaze; stamped "No. 17."

O. 87. Similar PANEL, with ornament in white with yellow ribbons on green ground.

O. 88. TILE, 6 inches square, ornamented in bold relief with female mask in white with festoons of yellow beads on green ground; stamped "No. 17."

O. 89. Similar TILE, coated with yellow glaze.

O. 90. Similar TILE, with male mask in white with festoons of yellow beads and pendent ribbons on green ground; stamped "No. 17."

O. 91. Similar TILE, with blue ground.

O. 92. to O. 96. Five TILES, each 6 inches square, ornamented in relief with radiate floral ornament in centre surrounded by a square frame; each specimen differently coloured.

O. 97. to O. 100. Four TILES, each 6 inches square, ornamented in low relief with leaves and berries; each specimen differently coloured.

O. 101. to O. 104. Four TILES, each 6 inches square, covered with pattern of imbricated leaves in low relief; each specimen differently coloured.

O. 105. O. 106. Two TILES, each 3 inches square, with embossed leaves and flowers, coloured.

O. 107. to O. 112. Six TILES, each 1 inch square, with embossed leaf-ornament, variously coloured.

O. 113. to O. 117. Five segments of BORDERS, 1 inch wide, with running ornaments, variously coloured.

O. 118. O. 119. Two BOSSES for architectural purposes, each 3 inches in diameter; glazed, one red and the other purple.

O. 120. to O. 124. Five similar BOSSES, each 2 inches in diameter, coated with glazes of various colours.

O. 125. ORNAMENTAL BOSS, 3 inches in diameter, with radiate floral ornament embossed, and glazed blue.

O. 126. Tablet supporting several samples of TERRA-COTTA PLANT-MARKERS, manufactured by Messrs. Maw & Co.

The following specimens have also been added to the collection while the sheets of this catalogue have been passing through the press.

G. 610. TOBACCO-JAR and COVER, in old Staffordshire ware, 7 inches high, 5 inches in diameter; the surface roughened by small fragments of variegated glazed ware; the cover surmounted by an acorn.

The character of the surface of this piece may be compared with that of the obelisk G. 381 (p. 127). The colours of the fragments employed for ornamentation in the two cases are identical, being confined to white, a pale blue, orange, and a deep chocolate; but in this specimen the fragments project from the surface with jagged edges which are merely smoothed by a general coating of glaze, whilst in the obelisk the entire surface has been rendered smooth, and resembles the polished face of a porphyritic rock, the fragments representing embedded crystals.

G. 611. BASIN, $2\frac{1}{2}$ inches high, 5 inches in diameter; Wedgwood's white jasper ware with relievo ornament in colours; on the body five oval medallions with classic subjects in white cameo-work on lilac ground with beaded borders, and festoons of ivy in sage-green jasper with lilac-coloured berries; round the base a border of acanthus leaves in sage-green, and a running leaf-border of same colour round the rim; impressed mark "Wedgwood."

G. 612. BREAKFAST CUP and SAUCER, in white glazed ware ornamented with gilt border of Greek fret or meander pattern; impressed mark "Wedgwood."

G. 613. TEA-POT, in plain white porcelain, forming part of the tea service designed for the Society of Arts by Felix Summerly, and manufactured by Minton & Co.; marked in red bat-printing, "Society of Arts' Prize Pattern, Minton & Co., Staffordshire," surrounding the designer's monogram, and date 1846.

G. 614. to G. 619. CREAM EWER, SUCRIER, CUPS and SAUCERS, SLOP BASIN, and PLATE, in plain white porcelain, forming part of the Society of Arts' prize pattern tea service of 1846; same mark as on the previous piece.

Presented by the Society of Arts, 1871.

G. 620. BASKET and COVER, in brownish drab stoneware, ornamented with band of white flowers in low relief on the body and acanthus leaves on the cover; handle of wicker work; impressed mark "Wilson" and figure 4.

H. 53. SMALL CUP, in Bow porcelain, painted and gilt with pair of quails or partridges and conventional foliage in oriental style.

Compare the pattern with that on the Bow specimens H. 31, 32, and 33, and on the Worcester piece N. 99.

H. 54. STAND for CONDIMENTS, in Bow porcelain, 6½ inches high, in form of three conventionalized valves of *Pecten*, grouped together with smaller shells, and surmounted by a *Buccinum;* the outer ribs and inner margins of the three large shells painted in blue.

Compare the style of this piece with that of the Bow specimen H. 27, and the Plymouth pieces K. 1 and 2 (Fig. 146).

J. 95. DINNER PLATE, in Derby porcelain, 9½ inches in diameter, painted in blue with simple flowers known as the "Chantilly pattern;" unmarked.

Presented by John Haslem, Esq.

The Chantilly was the commonest of the old Derby patterns, and was generally executed in blue, although it is sometimes found in green and pink, and occasionally edged in gold. This pattern stands as No. 1 in the old Derby pattern books.

J. 96. COMPOTIER, in Derby porcelain, 9½ inches in diameter by 7½; diamond shaped with lobed edge; centre and border painted with flowers by William Billingsley; Crown-Derby mark in puce, and number 53.

Presented by John Haslem, Esq.

Another example of Billingsley's flower painting is furnished by the Derby specimen J. 71.

J. 97. CUP and SAUCER, in old Derby porcelain, with fluted body and gilt floral border; Crown-Derby mark in puce.

Presented by John Haslem, Esq.

J. 98. CUP and SAUCER, in Derby porcelain, painted and gilt with rich pattern known as the "Old Japan;" Crown-Derby mark in red.

Much of the Derby china was decorated in the Japan style, especially during the later period of the old works. This specimen and the three following pieces have been selected by Mr. Haslem as illustrations of the richest "Derby Japans." Other examples of these favourite patterns are furnished by the specimens J. 40 and J. 93.

J. 99. CUP and SAUCER, in Derby porcelain, painted and gilt with pattern known as the "Witches Japan;" Crown-Derby mark in red.

J. 100. CUP and SAUCER, in Derby porcelain, painted and gilt with pattern known as the "Rock Japan;" Crown-Derby mark in red.

J. 101. CUP and SAUCER, in Derby porcelain, painted and gilt with pattern known as the "Grecian Japan;" Crown-Derby mark in red.

J. 102. PLATE, 7½ inches in diameter, in Pinxton porcelain, edged in blue and decorated with the simple pattern known as the "Tournay sprig;" unmarked.

Presented by John Haslem, Esq.

This piece shows well the character of the ware produced at the Pinxton works under the management of Billingsley. The translucent vitreous body resembles that subsequently made by him at Nantgarw and Coalport. After Billingsley left Pinxton, a much coarser variety of porcelain was manufactured, of which the specimen J. 94 is a fair example. The simple sprig painted upon this piece was a favourite pattern at Pinxton, and bore some resemblance to the design known as "No. 129" on the Derby china.

*** The ceramic department has also been recently enriched by the addition of an extensive collection of Romano-British ware from the Upchurch Marshes near the mouth of the Medway, presented by James Chisholm Gooden, Esq. This collection is now in course of arrangement in two cases situated near the pedestal case No. 2 (April 1871).

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In the Name of God, the Merciful, the Compassionate

Praise be to God, Lord of the Worlds

The Merciful, the Compassionate

Master of the Day of Judgment

You alone we worship, and You alone we ask for help

Guide us on the straight path

The path of those You have blessed

Not of those who have earned anger

Nor of those who are astray